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ABSTRACT

This report reviews and relates to each other the major concepts and theories that differentiate and define the constructs of motivation, satisfaction, and morale. It also describes and summarizes the potentialities of instruments and methods for measuring these concepts, with the focus on those theories and instruments most likely to be usefully applied in the context of the Army. Concepts of motivation are divided into content theories, which answer the question of what motivates people, and equity process theories, which answer how environmental factors and individual needs determine behavior. Job satisfaction is conceptualized in terms of need fullfillment, equity, and frame of reference models. Morale is conceptualized in terms of its components rather than as a single global construct. A number of practical implications for action are derived from the theories. Results are presented of a review of published and unpublished literature on the development and use of instruments to measure motivation, satisfaction, and morale at the work place, and on the reliability, validity, and practicality of the instruments. A final summary chapter includes an annotated list of instruments and methods (four for motivation, six for job satisfaction, and no self-report instruments for morale) deemed most likely to be useful to the Army. The twenty-page list of references is included. (Author/JT)

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FINAL REPORT

MOTIVATION, SATISFACTION, AND MORALE IN ARMY CAREERS: A REVIEW OF THEORY AND MEASUREMENT

Stephan J. Motowidlo, Benjamin E. Dowell, Michael A. Hopp
Walter C. Borman, Paul D. Johnson, Marvin D. Dunnette

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High levels of motivation, job satisfaction, and morale are important to the Army in the recruiting and retention of high-quality personnel. This report reviews and relates to each other the major concepts and theories that differentiate and define the constructs of motivation, satisfaction, and morale; it also describes and summarizes the potentialities of the instruments and methods for measuring these concepts. Discussion is focused on those theories and instruments most likely to be usefully applied in the context of the Army.

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20. Concepts of motivation are divided into content theories--which answer "What is it that motivates people?"--and the expectancy and equity process theories which answer "How do environmental factors and individual needs determine behavior?" Job satisfaction is conceptualized in terms of need fulfillment, equity, and frame of reference models. Morale is so complex that it may be best conceptualized in terms of its components than as a single global construct. A number of practical implications for action are derived from the theories.

The measures selected for description were those, both published and unpublished, that: (1) reported methodologically sound instrumentation studies of motivation, satisfaction, and morale, (2) described the construction, use, reliability, validity, or other psychometric properties of instruments purportedly measuring these constructs, (3) reported studies conducted in organizations similar to the U.S. Army, (4) described instruments most likely to be applicable in the Army, or (5) illustrated a set of studies which have obtained similar results.

FOREWORD

High levels of motivation, job satisfaction, and morale are important to the Army for the recruiting, retention, and career productivity of high-quality personnel. The present report is the first of several to result from a research project designed to search for, develop, evaluate, and refine ways of understanding and measuring the work motivation, job satisfaction, and productivity of individual soldiers. The project was accomplished jointly by personnel of the Army Research Institute for the Behavioral and Social Sciences (ARI) and Personnel Decisions, Inc., under contract DAHC 19-73-C-0025. The Contracting Officer's Technical Representative was Dr. D. Bruce Bell of the Individual Training and Skill Evaluation Technical Area, ARI. Work was done in response to Army Project 20762717A767, Techniques for Increasing Soldier Productivity."

J. E. UHLANER
Technical Director

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CHAPTER 1

INTRODUCTION

With the change to an all-volunteer Army, problems in the areas of recruiting, turnover, and productivity take on an added urgency and a sharper focus. To grapple with such problems, commanders have traditionally appealed to concepts of motivation, satisfaction, and morale. Often there seems to be an assumption that if only he could raise the level of motivation, satisfaction, and morale among his troops, the commander would greatly facilitate recruitment of high caliber personnel and retain them as productive soldiers in fulfilling careers.

But the question is this: Exactly how does one go about increasing motivation, satisfaction, and morale in the Army? There is no clear consensus on precisely what to do to improve these things. We cannot even set out to gather the kind of knowledge we need to answer that question until we are prepared for a second, more basic question: How can one measure motivation, satisfaction, and morale accurately enough to know when to try for improvement, when improvement has been achieved, and the effects of improvement? We cannot answer these questions until we answer a still more basic question: Exactly what are these things to be measured and improved, these things called motivation, satisfaction, and morale?

Purpose

This report addresses, first, the need to arrive at a clear understanding of the conceptual underpinnings of motivation, satisfaction, and morale and, second, the question of how to measure these constructs in the Army.

In Section I, we review the major theories and constructs that have been developed with respect to each of these three terms. We start with the working assumption that they refer to three different kinds of phenomena--that it makes conceptual and practical sense to define them differently. Besides providing a conceptual understanding, we also hope to establish a foundation for further research into the development of instruments measuring motivation, satisfaction, and morale, and of ways to improve these things systematically in the Army.

In Section II, we present the results of our efforts to extract from both published and unpublished literature those instruments developed as measures of motivation, satisfaction, and morale at the work place. We discuss what we could learn of the development and use of these instruments, try to ascertain the extent each reliably and validly measures what it purports to measure, and evaluate these instruments according to how practically useful they are.

Scope

We did not begin this review with the quixotic intent of covering everything ever written about motivation, satisfaction, and morale. Rather we planned to focus only on those theories, concepts, and instruments most likely to be usefully applied in the context of the Army.

For the theory section, this meant that we would restrict our scope to theories and studies which had apparent relevance for the behavior of people in formal organizations. We do not discuss the formulations of many of the personality theorists, clinical psychologists, or psychoanalysts whose writings have not been specifically tied down to behavior at the work place. Nor do we examine in any depth the motivational theories and findings of experimental psychologists whose research seems too basic for ready transposition and use in explaining and predicting specific work-related behaviors. We do review theories and concepts either that have been developed or frequently used in the context of human work-related behavior or that seem directly relevant to such theories and can readily be integrated with them.

For the measurement section, we began by scanning titles in a wide array of professional journals for articles that seemed likely to report the development or use of pertinent instruments. We examined articles from as far back as twenty years--or more in journals that were particularly rich in relevant reports--and also noted references to other articles that might be useful. Among the journals included in this phase of our literature review are the following:

- American Journal of Sociology
- American Sociological Review
- Educational and Psychological Measurement
- Human Relations
- Journal of Applied Psychology
- Journal of Vocational Behavior
- Occupational Psychology
- Organizational Behavior and Human Performance
- Personnel Journal
- Personnel Practice Bulletin
- Personnel Psychology
- Sociometry

Often we found references to articles in other journals, which we followed up where possible. To obtain copies of the instruments themselves or of articles that looked promising but were not readily available, we wrote directly to the authors and usually received their cooperation.

We followed other avenues to published material as well. We scanned issues of Psychological Abstracts for the past several years and supplemented this with a computer search of titles in the psychological literature

through the Psychological Abstracts Direct Access Terminal Services developed by the American Psychological Association. Having gone through these procedures, we are reasonably confident that we have at least exposed ourselves to most of the published literature relevant to this review.

In addition, we took steps to unearth pertinent unpublished literature. We sent a form letter to members of Division 14 (Industrial/Organizational Psychology) of the American Psychological Association, asking for nominations of industrial organizations whom we might contact for in-house reports of instruments used to measure motivation, satisfaction, and morale. From the many nominations we received, we surveyed a subset of those that appeared most likely to have conducted instrumentation studies in this area. Also, we received reports of studies done in military organizations in Canada and Australia. To obtain additional technical reports, we tapped the resources of the Defense Documentation Center, the National Technical Information Service, and the Smithsonian Science Information Exchange.

By this time we were deluged with material. Since we could not possibly include every single report, we paid particular attention to those that:

1. Reported instrumentation studies of motivation, satisfaction, and morale, which are methodologically sound

2. Described the construction, use, reliability, validity, or other psychometric properties of instruments purportedly measuring these constructs

3. Reported studies conducted in organizations similar to the U. S. Army

4. Described instruments most likely to be applicable in the U. S. Army

5. Illustrated a set of studies which have obtained similar results.

In both theoretical and instrumentation literatures, we struggled with ill-defined terms, loose conceptualizations, and methodological difficulties that rendered some of the reported results well-nigh uninterpretable. This is not to imply that all the material we found was tainted by these characteristics. To the contrary, many authors reported carefully conceived and well-executed studies undertaken with the kind of scientific rigor and precision required for significant contributions to the field. We were impressed, however, with the general lack of cohesiveness, profusion of different definitions for the same terms, lack of definitions for some terms, and failure on the part of many investigators to consider carefully what their predecessors had done before launching research of their own.

SECTION I: THEORY

CHAPTER 2

MOTIVATION: THEORETICAL PERSPECTIVE

The term "motivation" is used to explain the direction, energization, and persistence of behavior. We often refer to some kind of motivational construct when we try to explain why a person performs one particular behavior of a set of possible alternative behaviors, the vigor with which he performs that behavior, and how long he sticks with it (Campbell, Dunnette, Lawler, & Weick, 1970). When we have already observed an individual performing some particular behavior, we infer that he possesses the required ability to perform it and that he would be able to do so again. Therefore, when we see him on subsequent occasions performing the same behavior at different levels of intensity or for varying durations of time or when we see him performing a different behavior entirely, we infer that some motivational determinants are operative to account for these differences. (Of course, we assume that gross environmental conditions inhibiting or facilitating the performance of the behavior are constant. When, for instance, we see a person reading in a quiet library but not while driving his car, we are not likely to explain this behavioral difference solely in terms of his motivation.) Given that a person is able to do something, whether or not he does it and how vigorously and persistently he does it, depend on his motivation.

Many theoretical formulations have been developed to account for the direction, energization, and persistence of work-related behavior. Some focus on the content of motivation and seek to specify factors in the individual, his environment, or his behavior as he interacts with his environment that influence motivational parameters governing his behavior. They attempt to answer the question: <u>What</u> is it that motivates people? Other theories spell out the expectancy and equity processes by which these content factors influence behavior. They try to answer the question: <u>How</u> do environmental factors and individual needs determine behavior?

In making this distinction between content and process theories, we follow other authors who have reviewed the motivation literature (Campbell, Dunnette, Lawler, & Weick, 1970; Miner & Dachler, 1973; Campbell & Pritchard, in press). Although the distinction is a useful device for classifying and organizing theories in a review, it should not be pushed too far, because the difference between content and process theories is more one of degree than kind. That is, although content theories emphasize the "what" of motivation, they also at least suggest some form of process as well. And although process theories emphasize the "how" of motivation, they also include content elements.

Overview

Content motivational theories, like those of Murray (1938), Maslow (1954), and Herzberg (1966), state that there are classes of environmental stimuli, individual needs, or kinds of behaviors that have motivational properties in that they impel individuals to perform certain behaviors with varying degrees of vigor and persistence. That is, people will behave in certain ways to approach some kinds of environmental stimuli and avoid others, satisfy their needs, and have an opportunity to perform consummatory behaviors. Content motivation theories describe different ways of classifying these content factors and different explanations for their motivational properties.

Content factors play an important role in both expectancy process and equity process theories. It is the "outcome" concept in the process theories that includes this notion of motivation content. According to expectancy theories, motivation to perform a behavior depends on expectancy that the behavior will lead to certain outcomes (like pay, recognition, feelings of growth and self-actualization, and other "content" factors) and on the valence or desirability of the outcomes. The valence of an outcome like pay is largely determined by how instrumental it is for attaining other outcomes like good housing and community status. The valence of an outcome like task achievement, however, is largely determined by its expectancy, as well as by whether the person attributes success and task achievement to luck, effort, task difficulty or ability. The probability that a person will perform a specified act or behavior is directly related to the sum of the products of valence times expectancy for all salient outcomes that he perceives as resulting from that act.

Content factors, or "outcomes," play a somewhat different role in equity theory. According to equity theory, a person will perform certain acts to reduce feelings of inequity arising from his perception that his ratio of outcomes/inputs is different from the ratio of outcomes/inputs of a referent other. Although the theory makes similar predictions about what a person will do to reduce inequity in both instances where the outcomes are inequitably high and when they are inequitably low, empirical research suggests that at least for pay as an outcome, equity predictions are more likely to be borne out for underpayment (when outcomes are too low) than they are for overpayment (when outcomes are too high).

Content Theories of Motivation

Many savants, philosophers, theologians, and psychologists have proposed lists of environmental factors, individual factors, and behaviors as suggestions of what motivates people. We limit our consideration to lists proposed by three skilled behavioral scientists, Murray (1938), Maslow (1954), and Herzberg (1966).

Murray's Psychogenic Needs

After intensively studying a small number of individuals with a battery of questionnaires, interviews, and specially designed psychological tests, Henry A. Murray (1938) proposed a list of what he called "psychogenic needs" or social motives. They have greatly influenced subsequent theorizing about the human personality and have spawned such instruments as the TAT and Edwards Personal Preference Schedule (Edwards, 1959).

Murray's list of twenty social motives includes needs such as are listed below:

. Achievement--accomplishing something difficult; manipulating physical objects, humans, and ideas; overcoming obstacles; excelling.

. Dominance--controlling one's human environment; persuading; commanding; prohibiting.

. Nurturance--giving sympathy to and gratifying the needs of helpless others.

. Order--putting things in order; organizing.

. Play--acting for "fun" with no further purpose; relaxing from stress; participating in playful activities.

Murray's list appears to be an attempt to specify needs that all people have to varying degrees. In principle, we should be able to predict that a person high on certain of these needs would perform the kinds of behaviors included under them and would be motivated by any opportunity to do so. A person high on "play" would be motivated by opportunities to engage in playful activities, while another, high on "order," would be motivated by opportunities to organize. Lists of needs as general as Murray's may have profound impact in clinical, counseling, and "pure research" settings, but behaviors, environmental referents, and individual factors are not defined with enough precision to measure or increase the motivation, satisfaction, and morale of individuals in formal organizations like the Army.

Maslow's Need Hierarchy

Based on his extensive clinical experience, Maslow (1954) proposed a hierarchy of five general need categories:

1. Physiological needs. To eat, drink, breathe, rest, and be sheltered or protected from the elements.

2. Safety needs. To have stability, security, protection, structure, order, law, and freedom from fear, anxiety, and chaos.

3. Social needs. To belong, to be accepted by his fellows, and to give and receive friendship and love (McGregor, 1967).

4. Ego needs. These are of two kinds: a) those related to man's self-esteem--his needs for self-confidence, independence, achievement, competence, and knowledge; and b) those related to his reputation--needs for status, recognition, appreciation, and respect from his fellows (McGregor, 1967).

5. Self-actualization. Although difficult to define, Maslow writes that it is related to the fact that "the individual is doing what he, individually, is fitted for," "what a man can be, he must be. He must be true to his own nature (Maslow, 1954, p. 46)." McGregor interprets Maslow by calling these ". . . the needs for self-fulfillment. These are the needs for realizing one's own potentialities, for continued self-development, for being creative in the broadest sense of that term (1967, p. 276)."

Maslow suggests that these five kinds of needs are hierarchical: if the lower-order needs like physiological and safety are not satisfied, the higher-order needs, such as self-esteem and self-actualization, are less likely to motivate behavior. Hall & Nougaim (1968) attempted to test Maslow's hierarchical notion in a study with 49 management level employees at AT&T. Each year for 5 years, the subjects' motives were assessed by means of 3-hour interviews conducted by consulting psychologists. Protocols of these interviews were coded and scored for need strength or importance (from low to strong concern) and for extent of satisfaction (from over-satisfied to highly dissatisfied) in four of Maslow's needs (omitting the physiological category). If Maslow is correct in proposing a hierarchy of needs, Hall and Nougaim should have found that, within any given year, there should be a positive correlation between satisfaction of needs at one level and need strength at the next highest level. Also, from year to year, changes in satisfaction at one level should be positively correlated with changes in need strength at the next highest level. And managers who after 5 years are more successful in terms of salary should have higher self-actualization need strength than less successful managers. While correlations were indeed positive (.05 to .23), they were not high enough to offer much support for Maslow's hierarchy, particularly since the general trend was for need strength at any one level to correlate most highly with satisfaction at the same level. Other studies, such as Lawler and Suttle (1972) and Alderfer (1966), have also failed to support Maslow's hierarchy.

Locke (in press) criticizes Maslow's theory on a number of other grounds. He points out that there is yet no proof that Maslow's needs (above the physiological level) are in fact needs governing behavior. Also, he argues that Maslow's definitions of needs, such as self-actualization, are unintelligible and sometimes logically self-contradictory. The utility of Maslow's need hierarchy in measuring and improving motivation in the Army is, therefore, a matter of conjecture.

Herzberg's Two-Factor Theory

Herzberg and his colleagues (Herzberg, Mausner, & Snyderman, 1959; Herzberg, 1966) interviewed two hundred engineers and accountants representing a cross-section of Pittsburgh industry about job attitudes. They obtained information about occasions when the engineers felt exceptionally good and exceptionally bad toward their jobs. They asked about the causes of these feelings and their effect on job performance, personal relationships, and sense of well-being. Also, the interviewers tried to determine what brought these extremely positive or negative feelings back down to their "typical" levels.

These interview protocols suggested to the interviewers five major factors that seemed associated with job satisfaction and five others associated with job dissatisfaction. Satisfaction factors were achievement, recognition, work itself, responsibility, and advancement; Herzberg termed them "motivators" and interpreted them as motivating people to exert greater effort and perform at higher levels. Dissatisfaction factors included company policy and administration, supervision, salary, interpersonal relations, and working conditions; they were called "hygiene" factors and seemed related to environmental elements which prevent job dissatisfaction but have little positive effect on job attitudes.

Since this original study (Herzberg et al., 1959), several others with similar methodologies were carried out. Also many other studies with different methodologies were done to test the two-factor theory. These studies have been extensively reviewed elsewhere (e.g., House & Wigdor, 1967; Whitsett & Winslow, 1967). There is not yet general agreement on the status of the theory or even on the acceptability of many of the studies that were done to test it. We explore this issue further in Chapter 3 (Satisfaction: Theoretical Perspective) of this report. For now, the main point we are trying to make is that the two sets of factors --"hygiene" and "motivator"--that emerged from the original study can be thought of as potential motivators. But the main thrust of Herzberg's theory is not to explain motivation as we define it (i.e., the direction, energization, and persistence of behavior) but rather to explain changes in job satisfaction (Campbell & Pritchard, in press).

Summary and Evaluation of Content Theories

The formulations proposed by Murray (1938), Maslow (1954), and Herzberg (1966) are among the most frequently cited motivation content theories in the organizational literature. There are obvious differences among the three theories. Murray's list of "psychogenic needs" is a set of broad behaviorally defined traits; Maslow's hierarchical needs are also broad in scope, but defined more as categories of needs; Herzberg's "two-factors" of motivation and hygiene have more apparent relevance for job related motivation because they were developed in formal organizations pertinent in the context of work.

Although it is important to get a handle on the motivational content factors that impact behavior in the Army, the three most currently prominent content theories are not likely to be useful in this regard since their lists of content factors seem too broadly defined to be directly applicable in the Army. These lists should perhaps be used to guide further efforts at determining the most important motivational content factors in the Army. For example, a useful exercise would be to define in specific terms exactly what Murray's needs or Maslow's needs or Herzberg's factors mean in the Army. Specifically in what sense might soldiers display a need for "achievement" or "dominance"; how would they express physiological needs, ego needs, or self-actualization needs and what environmental factors in the Army might bear on these; precisely how do we translate "hygiene" factors like working conditions and company policy and administration or "motivator" factors like achievement and recognition into terms relevant for the Army? Instead of using these three theories directly, an alternative approach is to generate a list of motivation content factors for the Army from scratch, or from possibilities suggested by the existing theories. In any case, we need a more precise formulation of the content factors which impact the direction, vigor, and persistence of behavior in the unique organizational configuration of the Army and research toward this end should result in a sounder understanding of motivation in the Army.

Process Theories of Motivation: Expectancy

The two major types of process theories of motivation are expectancy theories and equity theories. First we discuss expectancy theories--theories which maintain that behavior is determined in part by a person's beliefs about the likelihood of behavior leading to various desirable or undesirable consequences. Later in this chapter, we review equity theories, which are also primarily process formulations but which differ from expectancy theories in that they emphasize not beliefs about relationships between behavior and desirable or undesirable consequences, but rather feelings of equity or inequity from perceptions that what one puts into his job is relatively greater than, equal to, or less than what he gets out of it.

Expectancy theories differ slightly in definitions of major terms. They also differ in what they regard as outcomes. Depending on the nature of the outcome and on certain other theoretical assumptions, they also differ in the nature of the relationship posited between expectancy and performance. According to some theories, performance is maximum at maximum expectancy whereas according to other theories, performance is maximum at intermediate expectancy.

In this discussion, conceptual and theoretical issues are emphasized more than empirical studies done to test these, because a careful review of all the empirical studies is beyond the scope of this report (for reviews

of the empirical literature, see Campbell et al., 1970; Campbell & Pritchard, in press; Lawler, 1971; Miner & Dachler, 1973; Mobley, 1971; Vroom, 1964; and Weiner, 1972). Some empirical studies are cited for each of the theories we discuss, but our concern is to outline major types of expectancy theories dealt with in the literature and then to provide a representative sample of the research frequently cited in support of each theory.

We place a major emphasis on Vroom's theory because expectancy theory is becoming more and more visible in the literature, and because Vroom's theory is the precursor to several variations that attempt to improve on his basic model. Among the more prominent theorists who have propounded expectancy models similar in many respects to Vroom's are Graen (1969), Porter & Lawler (1968), and Campbell, Dunnette, Lawler, & Weick (1970).

Vroom's Theory

Vroom (1964) articulated the most frequently cited expectancy theory of work motivation. His cognitive model follows in the tradition established by such psychologists as Lewin (1938) and Tolman (1959) and uses the three major concepts of valence, expectancy, and force.

Valence is defined as the affective orientation toward some particular outcome. An outcome has positive valence when a person wants to attain it and negative valence when he prefers not to attain the outcome. Some outcomes are preferred or not preferred because of themselves. Food, for instance, is intrinsically valued by a hungry person. There are many other outcomes, however, that have positive or negative valence according to whether they are instrumental to other outcomes with positive or negative valence. Thus, instrumentality, according to Vroom, relates one outcome to another. It is like a correlation coefficient, varying from +1 indicating that the second outcome will certainly occur if the first one does to -1 indicating that the second outcome will definitely not occur if the first one does.

Valence is clarified by what Vroom lists as ways to measure and manipulate it. The kinds of events an individual considers positively valent might be measured directly from his verbal reports of preferred outcomes or indirectly from his responses on projective instruments like the TAT. Another measure of valence is the extent to which an outcome strengthens or weakens a response tendency; outcomes that strengthen are positively valent and those that weaken are negatively valent. The vigor of a consummatory response like eating reflects how valent are outcomes like food. A final measure is the amount of time required for a person to choose between two outcomes. The longer the decision time, the less the difference in valence.

To manipulate the valence of an outcome, one might communicate information about how desirable it is; deprive the individual of a physically required outcome or provide him with incentive representing the desired outcome; or associate an outcome with already established rewards and punishments.

Vroom defines expectancy as the individual's belief that some particular outcome will probably follow some behavior. These beliefs can vary from subjective certainty that the outcome will follow the behavior (subjective probability is 1.0) to certainty that it will not (subjective probability is 0.0).

Verbal reports are one way to measure expectancy. Another is to observe how much of one valued outcome a person is willing to risk losing in order to win another outcome. The lower he bets on winning, the less his subjective expectancy that the outcome represented by winning will occur.

To manipulate a person's expectancies, one might alter the objective probability of an outcome or communicate to him what the probability is. Vroom also notes that expectancies can be manipulated by altering the proportion of number of times outcome follows an act to number of times it does not.

Force is a directional concept representing the resultant combination of valence and expectancy. It is used in the Lewinian sense: a field of forces which vary in direction and magnitude cause behavior.

With these definitions of valence, expectancy, and force, Vroom formulates two propositions which essentially constitute the body of his theory:

> Proposition 1. The valence of an outcome to a person is a monotonically increasing function of the algebraic sum of the products of the valences of all other outcomes and his conceptions of its instrumentality for the attainment of these other outcomes (p. 17).
>
> Proposition 2. The force on a person to perform an act is a monotonically increasing function of the algebraic sum of the products of the valences of all outcomes and the strength of his expectancies that the act will be followed by the attainment of these outcomes (p. 18).

Vroom states that an individual possesses differential preferences (valences) for job-related outcomes (such as pay, praise, security) and the net valence of each is a function of his perception of its correlation with other differentially preferred outcomes. An individual's tendencies toward various job-related actions (such as taking a job, working hard,

staying on a job or leaving it) depend on subjective beliefs (expectancies) that they will or will not lead to various valued outcomes. Propensity toward action demands both moderate to high valences for outcomes (i.e., he wants those outcomes) and moderate to high expectancies that his actions will indeed lead to those outcomes. For any given outcome or set of outcomes, his level of effort increases directly with his expectancy that such effort will indeed lead to attaining the outcome or outcomes. Thus, maximum effort and job performance should occur when a worker perceives that attaining a valued job goal (outcome) is maximally likely (high expectancy).

Vroom interprets over five hundred studies as supporting hypotheses derived from his model regarding occupational choice, job satisfaction, and level of job performance. For example, his theory predicts that a person will choose an occupation that he perceives as most instrumental to obtaining other valued outcomes. Vroom (1964, pp. 78-79) describes an unpublished study in which he had students state which occupation they would choose to enter and then rank five other occupations in order of preference. Also, they rated outcomes like having authority over others and high social status in terms of how desirable they were and the degrees to which they would likely be obtained in each of the six occupations chosen and ranked. Vroom found that the mean correlation (mean across all the outcomes) between the desirability and instrumentality ratings was highest for the chosen occupation ($r = .45$) and progressively decreased to the lowest ranked occupation ($r = -.04$). Thus, the chosen occupation and the ones most preferred were also regarded as more instrumental to attaining valued job outcomes, a finding in agreement with the model.

Another prediction derived from the model is that high performance is more likely when it is perceived as instrumental to attaining valued job outcomes. Vroom cites the classic Georgopolous, Mahoney, & Jones (1957) study of over six hundred employees in an appliance factory. Georgopolous et al. measured by questionnaire how instrumental high and low levels of performance were perceived as attaining the presumably valued outcomes of making more money in the long run, getting along well with the work group, and being promoted to a higher salary rate. They found that workers who reported high productivity as instrumental to these outcomes tended to be higher performers as measured by self-ratings of productivity. This result agrees with Vroom's model.

Graen's Theory

Graen (1969) tried to improve on Vroom's model by specifying more exactly the construct Vroom rather loosely referred to as outcomes and by avoiding the use of unnecessary and excessive meaning in terms borrowed from the vocabulary of Lewinian field theory. Both of these shortcomings were to some extent avoided through the use of role concepts. Graen defines a work role as a coherent set of behaviors which an organization expects

a member to perform. "Effective performer," "manager," and "group member" are examples of work roles. Whether or not a person is performing in accordance with any particular role can, presumably, be determined by comparing his behavior to standards of role performance which may be either explicitly or implicitly stated.

Graen next defines three classes of outcomes that result from the successful performance of work roles. One class is internally mediated by the "effective performer" himself and involves intrinsic rewards such as feelings of achievement after having accomplished some self-valued task. A second class of role outcomes are externally mediated by some powerful agent such as the supervisor who controls such things as pay or promotion to induce compliance with organizationally expected work roles. There is a third class of outcomes that comes automatically with the work role. Status in the community is an outcome often associated with the role "top executive." Unlike the other classes, it is not "dispensed" in discrete chunks but rather is something continuously encountered as long as the role is maintained.

Graen posits that an individual is differentially attracted to some outcomes and not others. The net attraction of a work role such as "effective performer" depends on the sum of many outcomes that may follow the role and the degree to which the role is perceived as instrumental to attaining these outcomes.

Porter's and Lawler's Theory

Porter & Lawler (1968) propose that the amount of effort exerted toward job performance depends on how much a person prefers likely outcomes of effective performance ("value of reward") and how likely he believes these outcomes follow the exertion of effort ("effort-reward probability") His perceived likelihood that reward follows effort in turn depends on his beliefs about the probability that performance will follow effort and the probability that reward will follow performance. Thus, effort is a multiplicative function of reward value times effort-performance probability times performance-reward probability.

Whether the expenditure of effort does in fact result in effective performance depends on the person's abilities and traits required for performance of the relevant job tasks and on his self-perceived "role" or beliefs about what kinds of behaviors he must perform in order to be effective.

Following performance, the person may receive instrinsic rewards like feelings of achievement contingent on his perceptions of his own performance or extrinsic rewards such as pay contingent on others' perceptions of his performance. The reliability with which rewards follow performance

in the person's experience influences his perceived effort-reward probability and his effort level. The person compares his rewards with what he imagines is equitable under the circumstances. If he regards obtained rewards as equitable, he will experience satisfaction. The more satisfaction he experiences following a reward, the more he values it. Thus, satisfaction influences perceived value of reward, a determinant of effort expenditure.

The Campbell, Dunnette, Lawler, and Weick Theory

A third variant of the basic expectancy model presented by Vroom has been proposed by Campbell, Dunnette, Lawler, & Weick (1970). In their "hybrid expectancy model," they acknowledge the need for more explicitly defined performance goals and discuss task goals in this context as being established either externally by the (individual's) work group or internally by the individual himself. Production quotas, quality standards, and time limits for projects are listed as examples of task goals.

Campbell et al. then define two levels of outcomes that can follow performance. First-level outcomes are directly contingent on effective performance resulting in accomplishment of task goals. External first-level outcomes are similar to the notion of extrinsic rewards; they include things like job security, pay, and promotion mediated externally by the organization. Internally mediated first-level outcomes are mediated by the individual himself, contingent on reaching task goals. They include what we listed earlier as intrinsic rewards; namely, feelings of achievement and growth. Second-level outcomes, things such as housing, food, community status, and freedom from anxiety, follow the attainment of first-level outcomes.

It is interesting to note that what is a second-level outcome in a civilian industrial organization may be a first-level outcome in the Army. Housing, for instance, is a second-level outcome in civilian organizations because a worker pays for it with money which he earns as a first-level outcome. In the Army, however, housing is not always paid for by the soldier, but rather is often a first-level outcome contingent on enlistment into the Army. Thus, housing could conceivably be a first-level outcome motivating people to join the Army.

Campbell et al. emphasize in their model a distinction between "Expectancy I" an individual's perceived probability of accomplishing his task, and Expectancy II," his perceived probability that task accomplishment will result in obtaining rewards. His decision to exert some particular level of effort on a task depends on all three of these variables: Expectancy I, Expectancy II, and Valence for relevant first-level outcomes.

Empirical Support for Expectancy Theories Based on Vroom's Model

It should be apparent that Vroom's (1964) original formulation of expectancy theory has undergone a number of modifications, but the variations on his model do not alter the relationships he proposed between valence, expectancy, and performance. The basic tenet of this tradition, that the product of valence times expectancy is directly and causally related to level of performance, has been tested in a number of studies. Fairly extensive reviews have been written by Campbell, Dunnette, Lawler, & Weick (1970), Mobley (1971), Heneman & Schwab (1972), and Campbell & Pritchard (in press). These reviews usually conclude that the essential hypotheses of Vroom's model are empirically supported, at least to some degree. Two studies are described below to provide the general flavor of this research.

Hackman & Porter (1968) derived a list of 14 outcomes which female telephone service representatives thought would be consequences of "working hard." Some were "time will seem to go faster," "the employee is more likely to receive thanks and gratitude from her customers," and "the employee is likely to receive a promotion more quickly." The researchers constructed a questionnaire which asked: a) how likely was it that these outcomes would follow hard work (i.e., expectancy); and, b) how desirable were these outcomes (i.e., valence). A motivation score was computed for each subject, in accordance with expectancy theory, as the sum across the 14 outcomes of the products of expectancy times valence. This motivation measure correlated .40 ($p<.01$) with a composite criterion of work effectiveness, in support of expectancy theory.

Mobley (1971) conducted a field study in two manufacturing organizations employing semi-skilled workers. One plant was on an hourly pay plan while the other was on an incentive system. With interviews and questionnaires, the researchers derived a list of 45 outcomes that seemed salient in both plants. They then divided performance into discrete levels and had subjects indicate, for each level, their expectancies of obtaining the outcomes. Mobley found that the product of expectancies times instrumentalities times valences correlated .30 with performance, in support of expectancy theory.

Other studies could also be cited as supporting hypotheses derived from expectancy theory. Porter & Lawler (1968), Lawler & Porter (1967), and Pritchard & Sanders (1973) found that effort expenditure was positively related to valence. Further, Lawler & Porter (1967), Shuster, Clark, & Rogers (1971), Spitzer (1964), and Jorgenson, Dunnette, & Pritchard (1971) found that effort tends to increase with increasing expectancy.

It seems that performance is maximum when expectancy and valence are also maximum. Other kinds of expectancy formulations such as propounded by Locke and Atkinson seem, at first, to indicate different relationships

between expectancy and performance, but their a priori assumptions are sufficiently different from each other and from the Vroom type of expectancy theories that they are not necessarily in conflict.

Locke's Theory: Intentions and Goals

Locke and his associates (e.g., Locke, 1968; Locke, Bryan, & Kendall, 1968; Locke, Cartledge, & Knerr, 1970) emphasize the effect of a person's intentions and subjective goals on performance. Their model of "task motivation" has the following key features (Locke, Cartledge, & Knerr, 1968, p. 135):

1. The most immediate direct motivational determinant of task performance is the individual's goal or intention.

2. External incentives affect action through their effects on the individual's goals and intentions.

3. Affective reactions are the result of evaluations, which consist of estimating the relationship between the existents (e.g., incentives, persons, actions, outcomes, etc.) that one perceives and one's values or value standards.

In a long series of laboratory experiments, Locke et al. found support for their hypothesis that the effect of rewards such as monetary incentives and knowledge of results alters a person's intentions regarding task goal achievement. Intentions were shown to be related to both rewards and performance, but when intentions were held constant, there was little demonstrable relationship between rewards and performance.

Of greater relevance are findings from similar experiments that difficult goals accepted by the individual lead to higher levels of performance than easy goals. In one study (Locke, Bryan, & Kendall, 1968), 127 paid subjects, undergraduates at the University of Maryland, were required to list possible uses for a common object such as a cardboard box. Performance on the task was indexed as the number of uses that were produced. The experimenters introduced a series of experimental manipulations (for instance, they offered varying amounts of money as incentive for high performance), had the subjects work at the task, and after the experiment administered a "goal-description questionnaire" to measure what the subjects' performance goals were during the experiment. Locke et al. found that subjects who reported the highest goals were also the highest performers.

Locke's model seems to make predictions exactly opposite to those made by Vroom. Since higher levels of performance are associated with more difficult goals, apparently Locke would predict that maximum performance is

associated with minimum expectancy. However, the proviso that the goal must be accepted by the individual before Locke's relationship applies throws a different light on the matter. It is not at all clear that a person who accepts and is committed to a difficult goal has a lower expectancy of achieving it in the same sense that a person who simply knows that his goal is objectively improbable has a low expectancy. Thus, although Locke's research seems at first to contradict the relationship posited between expectancy and performance by Vroom's model, his stipulation that the difficult goals be accepted renders his concept of goal difficulty not necessarily the inverse equivalent of Vroom's concept of expectancy.

Atkinson's Theory of Achievement Motivation

Atkinson (1964) suggests that the net tendency to approach an achievement-related goal is the sum of hope of success (T_S) and fear of failure (T_{AF}). Hope of success is determined by the product of general motive for success (M_S) (this is an individual differences variable called "need for achievement") times the perceived probability of success at the task (P_S) times incentive value of success (I_S). Incentive value of success is assumed to be an inverse function of probability of success; that is, it is assumed that the only determinant of preference for task completion is task difficulty. The more difficult the task, the greater the presumed satisfaction to be derived from accomplishing it ($I_S = 1-P_S$). Similarly, fear of failure is a product of motive to avoid failure (M_{AF}) times probability of failure (P_f) times incentive value of failure (I_f). Atkinson assumes that the probabilities of success and failure summate to unity; thus, $P_S + P_f = 1$. Therefore, the net or resultant tendency (T_A) to approach an achievement goal can be expressed as follows (from Weiner, 1972):

$$T_A = T_S + (-T_{AF})$$

. . . which expands to:

$$T_A = (M_S \times P_S \times I_S) - (M_{AF} \times P_f \times I_f)$$

. . . which reduces to:

$$T_A = (M_S - M_{AF})\,[P_S \times (1-P_S)].$$

The most relevant implication of Atkinson's model is the prediction it makes of the relationship between expectancy (of success) and performance. Weiner (1972, p. 204) shows how the assumption that incentive value of success (or valence of task accomplishment) is an inverse function of probability of success (or expectancy) and leads to the prediction that, for individuals in whom the motive for success is greater than the motive to avoid failure, maximum performance should occur when probability of success is .5.

Atkinson (1958) has shown empirical support for his model in a study in which college women competed on an arithmetic task and a clerical task (drawing X's in circles) for money. The subjects were told that money would be given to those performing in the top 1/20, 1/3, 1/2 or 3/4 of their respective groups. He found that performance was highest when they were told that the top half of their group would get the money (when the objective probability of success was .5).

Atkinson's model seems to be at odds with Vroom's and Locke's theories. But since the main thrust of his theory is on task achievement as the relevant outcome, his theory may not be comparable to expectancy theories described earlier. Lawler (1970) suggested that Atkinson's model may apply to situations where intrinsic rewards like feelings of achievement and growth are salient while Vroom's model holds for extrinsic rewards. Thus, Atkinson's proposed curvilinear relationship between expectancy and performance (maximum performance at intermediate levels of expectancy) does not contradict either the relationship posited by Locke between goal difficulty and performance for those who accept their performance goals or the relationship posited by Vroom between expectancy of desired outcomes and performance.

Weiner's Attribution Theory

Weiner's (1972) general "attributional model of action" suggests that in achievement related situations (and possibly in other situations as well), task stimuli result in anticipations about probable causal determinants of success and failure. These causal cognitions to some extent determine beliefs (expectancies) about likelihood of success and also "affective anticipations" (valence) of task success. The expectancies and valences then determine behavior which in turn results in some outcome. The outcome is evaluated, it causes an affective response (like satisfaction), and determines beliefs about the likelihood of success at future similar tasks.

Weiner postulates four perceived causes of success and failure: ability, effort, task difficulty, and luck. His model suggests that a person's valence for task success is determined by whether he perceives success to be caused by internal factors or external ones. Thus, if he attributes task success to ability or effort (internal), valence of success is higher than if he attributes task success to task difficulty and luck (external). The model also suggests that changes in the perceived probability of success (expectancy) following an achievement outcome depend on whether the person perceives success to be determined by stable or variable factors. If he attributes success to ability and task difficulty (stable), he is more likely to alter his expectancy of success at future similar tasks than if he attributes success to effort and luck (variable).

Most of the research done to test hypotheses derived from attribution theory has been conducted in laboratory experiments in academic settings with elementary school, high school, and college students (Weiner, 1972; Weiner & Kukla, 1970; Weiner, Heckhausen, Meyer, & Cook, 1972). In one study, for example (reported in Weiner, Heckhausen, Meyer, & Cook, 1972), the subjects were 63 boys in the fifth and sixth grades. They completed the Intellectual Achievement Responsibility Scale (IAR), a self-report inventory yielding scores intended as measures of the tendencies to ascribe: a) success to effort, b) failure to a lack of effort, c) success to ability, and d) failure to a lack of ability. Subjects then worked on achievement related tasks (line-tracing puzzles), some of which were impossible to accomplish. Subjects were told that if they succeeded, they were to help themselves to as many poker chips as they thought they deserved, but if they failed, they were to give back as many poker chips as they felt they should. Weiner et al. found that subjects who, according to the IAR, attribute success to effort and who do not attribute failure to a lack of effort, took relatively more chips after a success (rewarded themselves more) and returned relatively fewer chips after a failure (punished themselves less). The investigators interpret this result as supporting the attribution model: "The data indicate the attributions of success and failure to effort mediate between achievement outcomes and relative rewards and punishments for achievement behavior (Weiner et al., 1972, pp. 242-243)."

Weiner's model is essentially an elaboration and modification of Atkinson's achievement model. Weiner proposes that valence for task success is determined by more than just probability of success; both valence and expectancy of goal achievement are partially determined by whether the individual attributes success to his ability, effort, expenditure, level of task difficulty, or just plain luck.

Summary and Evaluation of Expectancy Process Theories

The various concepts of expectancy and valence--the major ingredients of an expectancy theory of motivation--and the nature of the outcomes are summarized below:

Vroom:

Outcomes--not defined except as "states of nature"; include job related things like pay, praise, and job security.

Expectancy--the perceived probability that a desired or undesired outcome will follow an act; determined mostly by the objective probability.

Valence--affective orientation toward an outcome; determined by the perceived instrumentality of an outcome for other outcomes.

Graen:

Outcomes--effective job performance is an implicit outcome, since it plays a major part in Graen's notion of expectancy (see below); role outcomes that follow acts meeting the requirements of work roles:

a) internally mediated; e.g., feelings of growth and achievement;
b) externally mediated by a powerful agent; e.g., pay and promotion;
c) externally mediated but not dispensed; e.g., status.

Expectancy--not extensively discussed by Graen, but operationalized as the perceived probability that increased effort leads to more effective job performance.

Valence--valence of work role is a function of the attractiveness of the role outcomes and how instrumental (in Vroom's sense) it is to attaining the outcomes.

Porter and Lawler:

Outcomes--job related rewards that are either intrinsic (feelings of achievement and growth) or extrinsic (pay and recognition).

Expectancy--the perceived probability that effort leads to rewards; consists of two components:

a) perceived effort--performance probability;
b) perceived performance reward probability; partially determined by past experience of obtaining rewards after performing well.

Valence--value of reward; partially determined by how much satisfaction was experienced in the past following receipt of rewards.

Campbell, Dunnette, Lawler, and Weick:

Outcomes--first-level outcomes are contingent on effective performance resulting in accomplishment of task goals; external, first-level outcomes include pay and promotion; internal, first-level outcomes include feelings of achievement and growth; second-level outcomes follow from attainment of first-level outcomes and include housing, food and community status.

Expectancy--of two kinds:

a) Expectancy I--the perceived probability that effort expenditure results in task accomplishment;
b) Expectancy II--perceived probability that task accomplishment results in obtaining rewards.

Valence--valence of first-level outcomes depends upon their instrumentality for second-level outcomes and on the attractiveness of the second-level outcomes.

Locke:

Outcomes--not specified, but perhaps simply "performance level" is the relevant outcome.

Expectancy--goal difficulty, which Locke has equated to the inverse of "probability of reaching the goal" (expectancy) as expressed by Atkinson (Locke, 1968).

Valence--not specified, but perhaps implied in the notion that task goals must be accepted. That is, "goal acceptance" implies that goal achievement has positive valence.

Atkinson:

Outcomes--task achievement; feelings of pride and shame.

Expectancy--perceived probability of succeeding, which equals one minus the perceived probability of failing; determined mostly by the objective probabilities of success and failure and also, to some extent, by need for achievement.

Valence--"incentive value of success" assumed to be an inverse function of probability of success; "incentive value of failure" assumed to be equal to probability of failure minus one (Weiner, 1972, p. 201).

Weiner:

Outcomes--task achievement; feelings of pride and shame.

Expectancy--perceived probability of task success; determined by whether success is attributed to stable factors (ability and task difficulty) or variable factors (effort and luck).

Valence--"affective anticipations" of task success; determined by whether success is attributed to internal factors (ability and effort) or external factors (task difficulty and luck).

These seven theories share the notion that level of effort exerted toward performing some behavior is a function of desirability of outcome and strength of conviction that the desired outcome will follow the behavior. The theorists also specify, to some extent, the determinants of valence and expectancy, at least the environmental and situational determinants. Although the role of individual differences can be readily read into most of these formulations, not all the theorists spell out exactly how individual differences variables impact valence and expectancy. People do differ in terms of how valent certain outcomes are for them: some are interested in pay, some in promotion. Internal outcomes like feelings of

growth and accomplishment might be most salient for some people, while for others, external outcomes like pay and promotion might be all that matters.

Perhaps it is less obvious that individual differences could also have a strong impact on expectancy of attaining outcomes. Conceivably, people differ according to their general expectancies of attaining desirable or undesirable outcomes. Atkinson (1958) suggests that people high in need for achievement (an individual differences variable) generally tend to have subjective expectancies of task success that are higher than the objective probabilities of success. Lawler (1971) proposes that self-esteem (a person's "general beliefs about his ability to cope with and control his environment (p. 107)") influences his expectancy of achieving a particular level of performance (task achievement). Motowidlo, Loehr, & Dunnette (1972) also suggest that self-esteem might be an important determinant of expectancy. They argue that a person's expectancy of attaining a desired outcome depends both on trait factors like self-esteem and on "state" factors which include situational cues providing information about the objective probability of success or failure. Furthermore, Motowidlo et al. suggest that the relationship between expecancy of success and motivation may differ according to whether trait or state components are more prominent in the individual's subjective expectancy of succeeding. Motowidlo et al. found some indications that when a person's expectancy is determined primarily by situational cues (trait components), his motivation and performance are maximum at intermediate levels of expectancy, but when expectancy is determined mostly by trait factors, performance is maximum at the highest levels of expectancy.

The theories set forth by Vroom, Graen, Porter & Lawler, and Campbell et al. all make similar predictions about the relationships between expectancy, valence, and motivation; namely, that motivation is a multiplicative function of valence times expectancy and that the amount of effort exerted will be maximum when both expectancy and valence are maximum.

While these four theories apparently assume that expectancy and valence are independent, Atkinson's theory, which deals mostly with task achievement and feelings of success, failure, pride, and shame as the salient outcomes, assumes that the valences of these outcomes are inversely related to the expectancies associated with them. Accordingly, when these outcomes are salient (instead of the more external outcomes like pay, promotion, etc.), motivation and effort will be maximum when both valence and expectancy are at intermediate levels. Weiner amends Atkinson's theory somewhat by proposing that the valences of these outcomes are determined not only by their expectancies but also by whether the person attributes task success to ability and effort or to luck and task difficulty. Also, Weiner argues that the expectancies of these outcomes are influenced by whether the person attributes success to ability and task difficulty or to effort and luck.

Locke adds a new dimension by proposing that if a goal has been accepted--that is, if a person intends to try for the goal--the more difficult the goal, the higher the level of motivation, effort, and, hence, performance. This is not necessarily contradictory with the theoretical relationships outlined in previous paragraphs, if we read "outcome" for "goal" and assume that the probability that a person will accept a goal (i.e., decide to try to reach the outcome), depends on the goal's valence and expectancy for him. The greater the product of goal valence times goal expectancy, the greater the likelihood that he will accept the goal.

Process Theories of Motivation: Equity

A second major type of motivational process discussed in the literature is the cognitive process underlying feelings of equity or inequity that result from comparisons of what one gave to a social exchange situation (input) with what one got from it (outcome) further compared to similar inputs and outcomes of others. Concepts from equity theory have been used to explain a wide range of phenomena in social situations. A recent review by Walster, Berscheid, & Walster (1973) on the role of equity theory in exploitive, philanthropic, and intimate social relationships indicates the versatility and nearly universal applicability of equity concepts in the area of social behavior.

The most relevant application of equity theory is in the employment situation, which, like exploitive, philanthropic, and intimate situations, can also be studied in terms of social exchange and resultant feelings of equity or inequity. Employees have perceptions of their work-related outcomes, like pay, recognition, and status, and also of their work-related inputs, like job effort, aptitude, and personal sacrifices which they make in order to be on the job eight hours per day. They also have perceptions of others' work-related outcomes and inputs. The central notion in equity theory is that a person feels distress when he perceives his own ratio of outcomes/inputs to be different from (and hence, inequitable relative to) the ratio of outcomes/inputs for another person and is motivated to reduce these feelings. In the employment situation, this means that the worker might respond in ways that would affect his job performance.

In the early 1960's four equity theory formulations were proposed (Adams, 1963a, 1965; Homans, 1961; Jaques, 1961; Patchen, 1961). Since, as Vroom (1964) points out, the differences among these four theories are not really great enough to be readily testable, we restrict our discussion to Adams' (1963a, 1965) theory which has been most completely articulated and which has generated the most research. After briefly reviewing Adams' theoretical formulations, some of the many related empirical studies done in formal work organizations are examined. In this section, we place a somewhat heavier emphasis on the empirical work than we did in our discussion of expectancy process formulations, because many of the terms in equity theory are more broadly conceptualized than the terms in

expectancy theory, and a close examination of how investigators have operationalized equity concepts in the study of work-related behavior may lead to a better understanding of the relevance of equity theory for behavior in the U. S. Army.

Adams' Equity Theory

Adams (1963a, 1965) suggests that inequity exists for a person when he perceives that the ratio of his outcomes to his inputs in some setting is not equal to the outcome/input ratio of some referent other person. He defines these terms:

Person: the person who is doing the perceiving and comparing.

Other: a referent individual Person is using for comparison.

inputs: things of value a person perceives himself contributing to a situation (e.g., effort, skills).

outcomes: things of value a person perceives himself getting out of a situation.

Thus, when Person's outcome/input ratio is perceived as not equal to referent Other's outcome/input ratio, Person feels inequity which results in anxiety, anger, or general uneasiness.

Adams (1963a) goes on to outline some predictions that equity theory would make about how people respond to inequity in certain conditions:

. Person may increase his inputs if they are low relative to Other's inputs and to his own outcomes.

. Person may decrease his inputs if they are high relative to Other's inputs and to his own outcomes.

. Person may increase his outcomes if they are low relative to Other's outcomes and to his own inputs.

. Person may decrease his outcomes if they are high relative to Other's outcomes and to his own inputs.

. Person may "leave the field" if he experiences inequity of any type.

. Person may psychologically distort his inputs and outcomes, increasing or decreasing them as required.

. Person may increase, decrease, or distort the inputs and outcomes of Others, or force Other to leave the field.

. Person may change his referent Other when inequity exists.

Empirical Support for Equity Theory

Many investigators have applied equity theory in studies of how people react to feelings of inequity resulting from perceptions that they are being paid too much or too little (see Lawler, 1971, for a recent review). Such studies make the assumption that pay is a major outcome for employees and consequently overpayment or underpayment causes feelings of inequity. For overpayment conditions in a piece-rate payment plan, equity theory predicts Person will slow down his rate of production and increase the quality of his output. For overpayment in an hourly plan, he will increase productivity. When underpaid in a piece-rate plan, Person will direct effort toward faster production with lower quality. When underpaid in an hourly plan, he will simply work less hard. The theory also predicts that Person might utilize cognitive processes (e.g., rationalizing) to reduce the inequity he perceives.

Adams & Rosenbaum (1962) report a pair of experimental studies which dealt with questions of overpayment. In one experiment, subjects were paid by the hour to conduct interviews. The experimental group of subjects was led to believe that they were underqualified as interviewers but that they would be paid as much as the more highly qualified people. The control group was treated as though they were well qualified and would be paid accordingly. Adams and Rosenbaum predicted that the overpaid group would conduct more interviews than the equitably paid group in order to reduce the inequity. This prediction was confirmed.

In their other experiment, both hourly and piece-rate situations were introduced. Feelings of inequity were induced in the same way as in the first experiment. Here the investigators feel equity theory was even more strongly supported. Results of the first experiment were replicated in that overpaid subjects conducted more interviews than equitably paid interviewers. In the piece-rate condition, equity theory predicts that overpaid subjects will conduct fewer interviews so that their input/outcome ratio is balanced (low/low) relative to their perceptions of the control group's ratio (high/high). This prediction was confirmed. Subjects who were led to believe that they were being overpaid conducted significantly fewer interviews in the piece-rate condition.

A study by Adams (1963b) also investigated the effects of overpayment but took both quantity and quality as dependent variables of interest. The quantity measure was the number of interviews completed and the quality measure was the amount of information collected. Subjects were paid by the interview and, as was suggested earlier, equity theory predicts quality of work should increase in the overpaid piece-work condition. The experimenters made subjects feel that they were either qualified or unqualified for conducting these open-ended interviews. Under these conditions the overpaid group conducted higher quality interviews (measured by number of pieces of information elicited by interviewers from

each interviewee). Also, the experimental group's interviewers conducted fewer interviews, which confirmed another prediction for the overpaid piece-rate condition.

Pritchard (1969) argues that self-esteem plays a contaminating role in experimental equity theory research on overpayment. He states that making subjects feel underqualified for their job may lower their self-esteem. Then some of the results could be explained by their efforts to raise self-esteem, and equity notions might not play a role at all.

Andrews (1967) was the first investigator to design an overpayment experiment which manipulated outcomes rather than inputs. He assigned subjects to one of six different conditions. There were two tasks available: an interesting task of interviewing students and a dull task of checking pages of data. For each task there was an under-, equitable, and overpaid condition. Underpaid subjects were paid 15 cents per piece; equitable, 20 cents; overpaid, 30 cents. Through an independent check, the experimenter determined that these three rates of pay and the two interest levels were perceived as intended.

Andrews (1967) found no significant differences in either quality or quantity between the interesting and dull tasks. This seems to contradict what equity theory would predict. However, Pritchard (1969) points out that Weick's (1964) work with task attractiveness allows for an alternate explanation in terms of equity theory. Weick found that subjects worked harder on a comparatively unattractive task and also reported it more enjoyable than one would predict looking at only the objective attractiveness of the task. Thus, Pritchard suggests that equity theory could explain Andrews' results if one assumes that subjects cognitively manipulated task attractiveness rather than reacting to the task's face value.

Results from Andrews' underpayment condition seemed to support underpayment equity predictions. However, the overpayment equity prediction was not clearly supported. That is, quantity for both tasks was greater for underpaid subjects than for equitably paid subjects, and the overpaid group produced less than the equitably paid group. However, the differences were not large and as Pritchard (1969) points out, the difference in quality between the underpaid and equitably paid group was considerably larger than the difference between overpaid and equitably paid. Other more recent studies (e.g., Lawler, 1968; Moore, 1968; Weiner, 1970) have also found that equity theory is only weakly supported in the overpayment condition when overpaid subjects' qualifications are not threatened by the experimenter.

Another problem with equity theory research is that experimental effects might be quite transitory. Lawler, Koplin, Young, & Fadem (1968) designed an experiment which dealt with reactions to inequity over a longer period of time than ever before considered. Lawler et al. recruited people from the community surrounding a major university. Experimenters randomly

divided these subjects into overpaid or equitably paid groups and had them conduct open-ended interviews during three 2-hour periods separated by at least 1 day. Quantity and quality measures were taken during each phase of the experiment. This experiment also investigated the possibility that subjects' need for money might override equity considerations.

Results showed time effects to be significant for both quantity and quality of output in the overpaid group. Overpaid subjects produced fewer interviews during the first period than did the equitably paid subjects as predicted. However, during the second and third periods there were no significant differences between the over- and equitably paid group in terms of either quantity or quality. Lawler et al. also correlated subjects' need for money with their quantity measure and found that overpaid group correlations for the three periods were .51, .71, and .70, respectively. These results suggest that need for money is an important determinant of productivity, especially after an initial working period.

Pritchard, Dunnette, & Jorgenson (1972) also did a longitudinal study to avoid some of the difficulties often inherent in one-shot, laboratory experiments conducted within the framework of a 1- or 2-hour experimental task. They hired 253 male, college students to work in a simulated company 4-1/2 hours per day for 7 days. The subjects were made to believe that they were indeed working for a real-life organization (the experiment took place over spring vacation), and the investigators took pains to avoid any evidence of a psychology experiment. Subjects were paid either on an hourly basis or on an incentive system related to quantity of output. They were made to feel either overpaid, equitably paid, or underpaid. The investigators induced these feelings of inequity or equity by manipulating subjects' perceptions of outcomes:

1. Overpayment--Subjects were told on their first day at work that an error had been made in the flyer that advertised the jobs. The wages specified were too high, but since the error was the company's fault, the company agreed to pay the overly high wages.

2. Equity--Subjects were told nothing about any errors in the flyer but were simply paid the wages advertised.

3. Underpayment--Subjects were told that the flyer erred in specifying low wages, but since they tacitly agreed to the wages by responding to the flyer, they would get paid at the incorrectly advertised rates even though other college students were being paid more for performing the same job.

After the third work day, subjects paid on the hourly system were switched to the incentive system and those on the incentive system were put on the hourly system. But subjects stayed in their original overpayment, equity, or underpayment conditions.

Results showed that performance means in the experimentally induced equity conditions were not sufficiently different to reach commonly accepted levels of statistical significance. However, further analyses of the effects of "naturally occurring inequity" or consequences of the switch from one pay system to another (e.g., a subject who was a high performer on the hourly plan and then switched to the incentive plan would feel overpaid because he would now get more money for the same level of performance) did support predictions of equity theory. Of the subjects who were first on the incentive plan and then switched to the hourly plan, those who felt underpaid after the switch (high performers before the switch) dropped the most in performance level, while those who felt overpaid (low performers before the switch) dropped the least.

Summary and Evaluation of Equity Process Theories

As articulated by Adams (1963a, 1965), equity theory states that people are motivated to reduce feelings of inequity that result when they perceive their outcome/input ratios are different from the outcome/input ratios of referent others. In formal organizations, this theory has been tested extensively with pay as the major input factor of concern. In conditions of underpayment, these studies provide support for equity theory. There is empirical evidence that when Person feels he is being underpaid compared to Other or Others, he changes his behavior to maximize outcomes, if possible (e.g., increasing productivity in a piece-rate situation). If underpaid Person is working in an hourly pay condition, he will most likely lower his output to reduce his feelings of inequity.

How equity theory works in an overpayment situation is less clear. Motivation to lessen inequity seems weak when one perceives that he has been overpaid. It now appears that over a period of time longer than a single, short-term experiment, effects of inequity due to perceived overpayment will be minimal. Pritchard (1969) also hypothesizes that feelings of inequity should only occur when Person and Other are in a relatively intimate exchange relationship (i.e., when Person is often confronted by the relatively underpaid Other). Pritchard points out that close relationships of this kind probably seldom occur in the real working world where relationships are likely to be on the impersonal end of an intimate-impersonal continuum. Overall, feelings of inequity due to perceived overpayment are probably not of much practical importance.

Of course, there are other potentially important outcome factors besides pay that should be considered. In the Army, for instance, critical outcomes might include such things as recognition from officers, opportunities for promotion, more leave time, and so on. It is important to know whether the findings of equity studies done with pay can be generalized to these other kinds of outcomes.

As it stands, equity theory has many weak points in terms of its ability to predict human behavior. For example, the theory does not take into account different modes of inequity reduction due to different values of inputs and/or outcomes, or different choices of referent Others. One study (Lawler & O'Gara, 1967) which did investigate individual differences suggests that they do in fact have implications. Lawler and O'Gara found that in an underpaid piece-rate condition subjects who scored high on the Responsibility scale of the California Psychological Inventory (CPI) did not lower the quality of their output (interviews) as much as persons who scored lower along the scale. In another study, Tornow (1971) suggests that people differ in terms of what they perceive as inputs or outcomes. He developed an instrument to measure these individual differences and found that they moderate the main effects of over-reward and under-reward on level of performance. Further studies of the role of individual differences in equity effects will probably suggest that their careful specification will improve the predictive power of equity theory.

The concept of "referent other" in equity theory also needs more research attention. For example, the following questions remain unanswered: Do referent Others change for a Person from situation to situation? Can the self (or ideal self) be an Other? What are the determinants of the choice of a referent Other? To advance equity theory it will be important to have a means of identifying beforehand who will be a Person's referent Other in a particular situation. This is crucial because in identifying an inequitable situation in advance, we will need to know the comparison individual Person will be using. Both individual difference and situational variables will need to be studied here. Some further issues in this area have been raised. Weick (1965) has considered the problem of identifying referent Others and proposed that the closer Person and Other are in terms of inputs and outcomes, the more imbalanced will a difference in their input/outcome ratios seem. Also, Weick (1966) has suggested that the "social isolate" Person will be more likely to use an internal frame of reference and thus move to align his own inputs and outcomes rather than moving to align his input/outcome ratio with his perception of someone else's ratio. Finally, Weick (1966) discusses the possible impact of an "expanded work setting" on inequity resolutions. He points out that inputs and outcomes may come from areas outside Person's work situation. Research should be done to investigate these and other questions pertaining to referent Others.

CHAPTER 3

SATISFACTION: THEORETICAL PERSPECTIVE

As used in the context of formal organizations, the term "job satisfaction" generally refers to varying feelings of positive or negative affect that a person has about different aspects of his job. We infer that a person is satisfied if he expresses feelings of happiness or fulfillment when talking about his job; we infer he is dissatisfied if he expresses feelings of unhappiness or frustration.

In this chapter, theoretical formulations of satisfaction are reviewed. We first consider theoretical efforts to explain the determinants of job-related satisfaction, then discuss some conceptual models that deal more generally with the notion of satisfaction, and finally review some of the literature on the consequences of satisfaction for organizationally relevant factors like performance and turnover. The intent of this chapter is not a comprehensive review of all studies, conceptual and empirical, done in the broad domain of job-related satisfaction. Our hope, rather, is to provide a summary of the major conceptual issues that support a sound understanding of satisfaction and its implications for performance and fulfillment in formal organizations.

Overview

Researchers who study the causes or determinants of job satisfaction usually emphasize the individual's needs, elements in his job environment, or his interactions with environment. If individual needs are emphasized, sets of needs are identified as fulfilled to varying degrees in different individuals. The environmental approach focuses on factors in the individual's job situation as determinants of his level of satisfaction. Herzberg and his associates (1959; Herzberg, 1966) organized these environmental causes into the Two-Factor Theory. Other researchers studied separate environmental factors like supervision, pay, promotions, co-workers, and work content not integrated into a unified model.

Since both individual needs and environmental elements can influence feelings of satisfaction, probably the most useful approach is to focus on them simultaneously and to consider the individual/environment interaction as the individual satisfies his needs with available environmental reinforcers. This approach is central in the Theory of Work Adjustment which maintains that feelings of satisfaction depend on the degree of correspondence between an individual's needs (what he wants from his environment) and available environmental reinforcers (what he can get from his environment).

Much of the empirical and theoretical research in the area of job satisfaction is guided by three distinct, global models of what constitutes satisfaction and what constructs are required to cope conceptually with the major issues surrounding job satisfaction. One of these models, the need fulfillment model (exemplified by the Theory of Work Adjustment), holds that people have positive or negative feelings about their job situation depending on environmental elements available to fill their needs. The equity model is another prevalent conceptual framework, and it maintains that job satisfaction is a function of the degree of match between actual level of a worker's job rewards and perceived equitable level of rewards. A third model, the frame of reference model, departs from the other two models in that it focuses not on the individual's desires and needs, but on the discrepancy between the perceived characteristics of his job and some external standard of comparison.

Each of these three models shows some utility for the study of job satisfaction. None by itself is clearly superior to the others. Feelings of need fulfillment, equity, and the individual's frame of reference all contribute to his level of job satisfaction. Further theoretical research might fruitfully be applied to the integration and synthesis of these three conceptual frameworks.

It is important to ask about consequences as well as causes of job satisfaction. The research addressed to consequences deals mostly with the impact of job satisfaction on five general indices of organizational functioning: accident rates, grievance rates, absenteeism, turnover, and productivity. Of these, turnover (voluntary withdrawal from the organization; termination of employment) is most consistently related to levels of satisfaction and dissatisfaction. Absenteeism and grievances also show some relationship with satisfaction, but not as much or as consistently as turnover. Some researchers now seem to favor considering accidents and productivity as determinants rather than as consequences, the formerly popular view.

Determinants of Job Satisfaction

In constructing theories about what determines job satisfaction, theorists generally focus on causal factors originating from either the individual, the environment, or the interaction between individual and environment. Interest in the individual focuses on needs and desires. Interest in the environment is aimed at job aspects such as leadership or supervision, wages, promotion, co-workers, and the content of work itself. The focus on individual-environment interaction concerns the correspondence between the individual's needs or desires and the presence of environmental characteristics conducive to need satisfaction.

The Individual

Two theories used as a basis for focusing on the individual as the determinant of job satisfaction are Maslow's Need Hierarchy Theory (1954) and Alderfer's Existence, Relatedness, and Growth (ERG) Theory (1969; 1972). Maslow's theory was originally conceived as a theory of motivation, but others have used it to study job satisfaction (Porter, 1961, 1962, 1963; Beer, 1966, 1968). Since Maslow's theory was discussed in Chapter 2 of this report, it is not reviewed again here. Alderfer's ERG theory was developed expressly for the purpose of understanding the relationship between the degree of need satisfaction and the resulting strength of the desire to satisfy that need. The notion of need, therefore, has implications for both motivation and satisfaction: people are motivated to act in ways that result in need gratification; they experience feelings of satisfaction when their needs are gratified.

Alderfer (1969, 1972) presents his Existence, Relatedness, and Growth (ERG) Theory as an alternative to Maslow's Need Hierarchy Theory. ERG Theory assumes that an individual has three major needs at core which he strives to meet. Each need is defined in terms of the target of gratification efforts. The needs and their gratification targets are listed below:

1. Existence Needs. The targets for these needs are material substances, and the process is simply getting enough. Examples are food, water, pay, fringe benefits, and good working conditions. The basic characteristic of targets for existence needs involves the idea that "when the substances are scarce, the process quickly becomes 'win-lose,' and one person's gain is correlated with another's loss (Alderfer, 1972, p. 12)."

2. Relatedness Needs. Targets are significant others (persons or groups), and the process involves the mutual sharing of thoughts and feelings. Example targets are family, friends, superiors, co-workers, and subordinates. The basic characteristic is that these require mutual sharing, which contrasts with the characteristic of existence needs. Alderfer notes that the outcome in satisfying relatedness needs may not always be a positive affectual state for both or either person. He considers the mutual exchange by expression of anger and hostility just as important as expression of warmth and closeness.

3. Growth Needs. Targets are environmental settings, and the process involves the individual making creative or productive effects on himself and the environment. "Satisfaction of growth needs comes from a person engaging problems which call upon him to utilize his capacities fully and may include requiring him to develop additional capacities. . . Thus satisfaction of growth needs depends on a person finding the opportunities to be what he is most fully and to become what he can (Alderfer, 1969, p. 147)."

Included in ERG Theory is the basic hypothesis of interchangeability or transferability within and between need categories. Within need classes, an individual directs his efforts toward other targets if one or more desirable targets are not accessible. An example is an individual's desire to obtain more pay if he experiences poor working conditions.

Between need categories, Alderfer assumes that two cycles of transfer occur: a cycle between existence and relatedness needs, and a cycle between relatedness and growth needs. According to this portion of the theory, a person frustrated in satisfying relatedness needs will turn back to existence needs and seek greater material gratification. A similar process was hypothesized in the cycle between relatedness and growth needs. Alderfer assumes that most individuals are located in one of these two cycles.

A quasi-hierarchical arrangement of need categories results when the more a person's existence needs are satisfied, the more he strives to satisfy relatedness needs, and the more his relatedness needs are satisfied, the more he tries to satisfy growth needs. Moreover, Alderfer suggests that when growth needs directed toward one target are satisfied, efforts will be directed toward another target. In effect then, even though a person's growth needs in some areas are satisfied, he will continue to try to satisfy growth needs in other areas.

Alderfer (1969) empirically compared ERG Theory with Maslow's Need Hierarchy Theory. He administered questionnaires designed to measure the categories of Maslow's hierarchy (items taken from Porter, 1962; Beer, 1966) and the categories of ERG Theory, to 110 employees in a bank, representing all job levels below vice-president. He found little support for Maslow's proposition that needs are arranged in a hierarchy of prepotence or dominance. But the results did tend to support ERG Theory's hypotheses of transferability or replaceability. Examples of the hypotheses that were supported are:

1. The less "respect from co-workers" is satisfied, the more "respect from superiors" will be desired.

2. The less "respect from co-workers" is satisfied, the more it will be desired.

3. The less growth needs are satisfied, the more "respect from co-workers and superiors" will be desired.

4. The less "respect from superiors" is satisfied, the more pay and fringe benefits will be desired.

The two need theories discussed in this section--Maslow's and Alderfer's--are examples of theories that focus on the state of individual needs as primary determinants of satisfaction. According to this general approach, one should identify sets of needs that are fulfilled to varying degrees in different individuals. Maslow's (1954) theory is widely known and often cited in the literature of human work motivation and satisfaction. It has not, however, been well supported by empirical research. Alderfer's (1969, 1972) theory is newer and somewhat less well known. Although there is some evidence in support of Alderfer's formulations, the theory is yet too relatively untested, and we do not yet know the extent of its utility or applicability in explaining satisfaction at the work place.

The Environment

A second way to look at the determinants of job-related satisfaction is to focus on elements in the person's environment as potential causes of his positive or negative feelings about his overall job situation. Of the two such approaches we discuss in this section, one--that of Herzberg and his associates--represents an attempt to integrate theoretically the dimensions and aspects of the overall job situation into a comprehensive theory. The other approach is one that simply considers each of a set of potentially important environmental determinants separately with no real effort to integrate them into a single, coherent theoretical framework.

Herzberg's Two-Factor Theory (Herzberg et al., 1959; Herzberg, 1966) which was discussed in Chapter 2 (Motivation: Theoretical Perspective) is currently a highly controversial theory which proposes two classes of environmental factors--motivator and hygiene--as determinants of job-related satisfaction and dissatisfaction. The motivator or satisfaction factors include achievement, recognition, work itself, responsibility, and advancement. The hygiene or dissatisfaction factors include company policy and administration, supervision, salary, interpersonal relations, and working conditions. In Chapter 2 we briefly described the original study conducted by Herzberg et al. (1959) which suggested these two sets of factors. Herzberg (1966) concludes from this and subsequent research that factors involved in producing job dissatisfaction are separate and distinct from the factors conducive to job satisfaction. Herzberg proposes that the opposite of job satisfaction is not dissatisfaction, but rather no job satisfaction; similarly, the opposite of job dissatisfaction is no job dissatisfaction, not satisfaction with one's job.

An extensive amount of research has been stimulated by the Two-Factor Theory. Two comprehensive reviews that take opposing positions have been published (House & Wigdor, 1967; Whitsett & Winslow, 1967). Their major point of conflict is the methodology of studying Herzberg's theory. House & Wigdor (1967) argue that the Two-Factor Theory is only supported when the original, critical incident classification method is used, which, they suggest, takes advantage of an individual's defensive bias. This defensive

bias manifests itself in the critical incident classification method by the individual's attribution of satisfying events to intrinsic factors, factors which the individual may influence, and the attribution of dissatisfying events to extrinsic factors, factors over which the individual has no control. In this manner the individual is responsible for satisfying events, but the environment or others are responsible for dissatisfying events. Studies using other methodologies, Q sorts and Q analyses, forced choice, and ratings do not support the independence of the two factors (Wernimont, 1966; Dunnette, Campbell, & Hakel, 1967). The data from these studies indicate that the same factor may cause satisfaction in one individual and dissatisfaction in another or either satisfaction or dissatisfaction in the same individual.

Whitsett & Winslow (1967) are very critical of the studies which have not supported the Two-Factor Theory, citing methodological flaws in each. Recent studies designed to correct these methodological flaws have, however, also failed to find support for the motivator-hygiene dichotomy (Hulin & Waters, 1971; Schneider & Locke, 1971; Waters & Waters, 1972).

In summary, Herzberg's Two-Factor Theory has not received compelling support. Criticisms of the theory include the arguments that the critical incident methodology is susceptible to defensive bias, and that when using other methods, the independence of the factors relating to satisfaction and dissatisfaction is typically not found. To its credit, the theory's wide popularity among lay people has led to new and fruitful research emphases on issues surrounding the notion of "work itself," and the Two-Factor Theory has sparked a burgeoning literature in job enlargement and job enrichment. But we must conclude that at this point its theoretical propositions do not adequately account for data generated by the theory, and that other theoretical models should be developed. The distinction between intrinsic factors (achievement, recognition, responsibility, etc.) and extrinsic factors (supervision, salary, working conditions, etc.) made by Herzberg seems to be a promising point of departure for the development of new theories.

A second approach to studying environmental determinants of job-related satisfaction is to consider separately each of a set of potentially important environmental factors and to evaluate their likely impact on a person's feelings about his overall job situation. Five such factors that seem to crop up again and again in the literature are supervision, pay, promotions, co-workers, and the job itself (e.g., Smith, Kendall, & Hulin, 1969). Accordingly, each is discussed in turn.

Supervision. Leadership or supervisory style is discussed in the literature in terms of three major dimensions: "consideration" (a style characterized by friendship, trust, respect, and warmth), "initiating structure" (emphasis on the organization and definition of group activities), and "participative decision making" (giving subordinates major responsibility for decisions regarding the performance of their work)

(Campbell, Dunnette, Lawler, & Weick, 1970). Of these, consideration is most consistently found related to subordinates' feelings of satisfaction or dissatisfaction, and there is some evidence that participative decision-making may impact subordinate satisfaction as well.

Studies by Halpin & Winer (1957), Halpin (1957), Seeman (1957), and Likert (1961) found positive relationships between a leader's consideration behavior and subordinates' job satisfaction. However, these studies are correlational and therefore do not necessarily indicate the direction of causation. Vroom (1964), for example, argues that superiors may display a greater degree of consideration for subordinates who appear satisfied and accepting of them.

There is also some evidence that suggests a positive relationship between job satisfaction and participative decision-making or the degree to which subordinates are permitted to influence decision-making (Baumgartel, 1956; Jacobson, 1951; Morse, 1953; Morse & Reimer, 1956). Campbell et al. (1970) suggest possible explanations for this relationship by listing several rewards which a subordinate may incur through participation:

1. Participation adds variety to his job.

2. He may receive recognition and the chance to be more visible to his superiors.

3. He learns more about the intricacies of the firm and is better informed when he performs his own assignment.

4. Needs for autonomy and independence are satisfied to a greater extent than they may be on the job.

Vroom (1959, 1960) found that the effects of participation in decision-making on satisfaction may be moderated by subordinates' need for independence and tendencies toward authoritarianism. He found that amount of participation was most positively associated with job satisfaction for individuals high in need for independence and low in authoritarianism, and least positively related to satisfaction for those low in need for independence and high in authoritarianism. Under all conditions of need for independence and authoritarianism, participation improved job satisfaction; the difference was in the degree of improvement. Therefore, although participation may, in general, be positively related to satisfaction, individual differences in subordinate personality will affect the degree of relationship.

Pay. Lawler (1971) summarized most of the research relating pay to satisfaction. In his book he reviews two theories of the relationship between pay and satisfaction, discrepancy theory and equity theory. Discrepancy theory views satisfaction to be a function of the

correspondence between the amount of pay possessed and the amount desired. Equity theory postulates that satisfaction is a function of the correspondence between an individual's perception of his own inputs (experience, education, effort, ability) and outcomes (pay), and his perceptions of the inputs and outcomes of other individuals.

Patchen (1961) and Pritchard, Dunnette, & Jorgenson (1972) provided support for the equity notion of the relationship between amount of pay and satisfaction. Those equitably rewarded (equity being objectively defined by experimental manipulations) were more satisfied with their job than those who were underrewarded relative to others. A study of managerial job satisfaction by Lawler & Porter (1963) also supports the equity view. In a study of two thousand managers, they found that when level of pay is held constant, job satisfaction is negatively correlated with managerial level. With managerial level held constant, a positive relationship between pay and satisfaction was found (the greater the amount of pay, the greater the satisfaction). Locke (in press) argues that the discrepancy theory and equity theory are not opposing theories; rather, discrepancy theory presents a model of the relationship between pay and satisfaction (the how), and equity theory provides content for the discrepancy theory (the what). In other words, equity theory and discrepancy theory are two different levels of explanation, not opposing theories.

Promotion. The relationship between promotions and job satisfaction is complex. A promotion to a higher level in an organization typically involves significant changes in supervision, pay, co-workers, and the content of work itself. This discussion will be limited to the relationship between promotional opportunities and job satisfaction.

Morse (1953), using data from a utility company, found a positive relationship between perceptions of promotional opportunities and satisfaction; the more an individual sees that he has a good chance for a promotion, the greater his satisfaction. Sirota (1959) found a negative relationship between promotional frustration (a measure of how soon an individual expected a promotion, subtracted from a measure of how soon the individual would like a promotion) and satisfaction. Both of these studies support the notion that satisfaction is associated with the individual's perception that he has opportunities for promotion.

Co-workers. If an individual's interaction with his co-workers is rewarding, he should be relatively more satisfied with his overall job situation. Yet industrial/organizational psychology has not directed much research into the relationship between job satisfaction and the characteristics of co-workers. Social psychologists have studied in the laboratory the relationship between group characteristics and member satisfaction with participation in the group. These characteristics are similarity of attitudes, acceptance of the individual by the group, and goal interdependence.

Newcomb (1956) hypothesized that group interaction would be more rewarding for members of the group when they have similar attitudes. Newcomb (1956, 1961) found significant correlations between similarity of attitudes and the degree of attraction to other members of the group. Attraction to other members may be interpreted as a measure of the degree to which interaction is rewarding to the participants in the group.

Bellows (1949) suggested that the degree to which an employee is accepted by his co-workers (degree he is considered an important part of the group) may largely determine job satisfaction. Van Zelst (1951), in a study of construction workers, found a substantial correlation between an individual's "interpersonal desirability" (the degree to which an individual is liked) as measured by ratings made by his co-workers and his level of job satisfaction. Zalesnik, Christenson, & Roethlisberger (1958) and Jackson (1959) found the same positive relationships.

Interdependence of goals of the work group have also been hypothesized to affect satisfaction. Jones & Vroom (1964) studied the effects of goal interdependence in the laboratory with two-man work groups. One group (high goal interdependence) was told they would both receive an incentive if their combined performance exceeded the average for other groups. Another group (low goal interdependence) was told they would receive an incentive if their individual performance exceeded that of their partner. The results indicated that individuals in the high goal interdependence condition were more satisfied with their performance than the individuals in the low goal interdependence condition. Vroom (1964) stresses that individual differences in needs (needs for independence, affiliation, recognition, security) and work group characteristics probably interact to determine the effects work group characteristics have on satisfaction.

In summary, the evidence suggests that the characteristics of the individual's co-workers and the work group situation (similarity of attitudes, acceptance, goal interdependence) may affect his job satisfaction. It seems reasonable that individual differences may moderate these relationships, but no evidence directed to this point has yet been presented.

Work content. The content of work (variety, challenge, responsibility, autonomy, and tasks performed) is considered by many to be one of the most important determinants of job satisfaction (Herzberg, Mausner & Snyderman, 1959; Ford, 1969; Maher, 1971). Much of the job enrichment movement is built upon this premise. Although many elements of work content are found to be related to job satisfaction, in some cases, worker characteristics seem to moderate the effects of these elements.

The variety of tasks performed is, in most cases, positively related to job satisfaction (Walker & Guest, 1952; Baldamus, 1951; Mann & Hoffman, 1960). Kennedy & O'Neil (1958), however, found no relationship between

variety and satisfaction. Vroom & Maier (1961), in attempting to reconcile these discordant findings, hypothesize that it is the performance of a variety of tasks forming a meaningful, unified whole which produces satisfaction, not just the performance of a number of unrelated tasks. In the Kennedy & O'Neil (1958) study in which variety was not related to satisfaction, the tasks performed were unrelated, while in the studies that found variety related to satisfaction, the tasks were unified and related to a single goal.

Measured intelligence is found to moderate the effects of variety of tasks on worker satisfaction. Studies by Wyatt, Fraser, & Stock (1929) and Reynolds (1951) indicate that workers with low measured intelligence are more satisfied with highly repetitive jobs than high intelligence workers performing the same repetitive jobs.

The individual's perception that his job offers him the opportunity to use his skills and abilities is also linked to job satisfaction (Brophy, 1959; Kornhauser, 1965; Vroom, 1962). These studies found positive correlations between job satisfaction and individual's ratings of the degree his job utilized his abilities. Job level apparently affects this relationship. Studies by Centers (1948), Morse & Weiss (1955), and Lyman (1955) show that the importance attributed to opportunity to use one's abilities increases as job level increases.

Hulin & Blood (1968) and Hulin (1971) argue that not all individuals value occupational achievement, the intrinsic value of hard work, or the attainment of responsible positions, based on evidence from studies by Turner & Lawrence (1965), Kilbridge (1960), and Blood & Hulin (1967). Turner & Lawrence (1965) concluded that cultural differences associated with living in small towns versus large cities are related to a worker's job satisfaction. Their results indicate that for workers living in small towns, the more an individual's job is characterized by variety, complexity, responsibility, and authority, the higher the individual's job satisfaction. For city workers, however, these job characteristics were not related to higher job satisfaction. Kilbridge (1960), in a study of assembly line workers employed by a factory in a large city, found that 51 percent preferred a smaller job involving less variety and complexity, 37 percent were indifferent, and only 12 percent preferred an enlarged job involving more variety, complexity, responsibility. Research by Blood & Hulin (1967) compared the correlation between job level (an index of job variety, complexity, responsibility) and job satisfaction for individuals living in large, industrialized communities with large slum areas, and individuals living in small communities with a low standard of living and few slums. There was a positive correlation between job satisfaction and job level for those living in small communities, but no relationship was found between these two variables for those workers living in large communities.

Studies by Friedman & Havighurst (1962) and Morse & Weiss (1955) suggest that workers in lower occupational levels view work only as a means to earn a living or to keep busy, while higher level workers view work as a means of fulfilling higher order needs like esteem, autonomy, and self-actualization.

In summary, individual differences must be considered in evaluating the effects of work content on job satisfaction. Not all workers value the same work content elements. Therefore, the content of work will have different relationships to job satisfaction for different individuals.

Summary: Environmental determinants of job satisfaction. Environmental factors do influence job satisfaction. In the area of supervision, the leader's consideration and the worker's opportunity to participate in decision-making correlate with job satisfaction. The amount of pay and perceived opportunity for promotions relate to worker satisfaction. Job satisfaction relates to the structure of the work group (competition versus cooperation to gain rewards), as well as to characteristics of the individual's co-workers. Another element which influences job satisfaction and which is currently receiving a great deal of research attention is the content of the work itself; that is, the variety and complexity of tasks, the responsibility, and the authority associated with the individual's job.

In the development of his Two-Factor Theory, Herzberg sought to build a theoretical framework by which the influence of job situation factors on satisfaction and dissatisfaction could be explained. At this point, we conclude that his theory is not capable of integrating the available data and that other theoretical models should be developed.

In considering the relationship between some environmental factors and job satisfaction (i.e., supervision, co-workers, and work content), some individual differences variables (needs for independence, affiliation, responsibility, intelligence, authoritarianism, cultural differences) have been hypothesized to affect the relationship. The discussion of theories focusing on the individual and those focusing on the environment have both indicated that to understand the determinants of job satisfaction one must focus on the individual and his environment simultaneously.

The Individual-Environment Interaction

The third approach to viewing the determinants of job satisfaction is to focus on the interaction between individual and environment. The most comprehensive interactive theory of job satisfaction is the Theory of Work Adjustment (Dawis, Lofquist,& Weiss, 1968).

There are three components in this theory: the reinforcer system of the work environment (i.e., the rewards available from the job), the individual's needs (i.e., what the individual desires to obtain in the work environment),

and the individual's abilities. According to the Theory of Work Adjustment, satisfaction is a function of the match between the reinforcer system of the work environment and the individual's needs, provided that the individual's abilities correspond with the ability requirements of the work environment.

Weiss, Dawis, Lofquist, & England (1966) list twenty categories which individuals consider to some degree as important outcomes from work, and which jobs provide to some degree to the individual. The twenty categories with statements used to represent them when assessing their importance are:

1. Ability utilization: I could do something that makes use of my abilities.
2. Achievement: The job would provide an opportunity for advancement.
3. Activity: I could be busy all the time.
4. Advancement: The job would provide an opportunity for advancement.
5. Authority: I could tell people what to do.
6. Company policies and practices: The company would administer its policies fairly.
7. Compensation: My pay would compare with that of other workers.
8. Co-workers: My co-workers would be easy to make friends with.
9. Creativity: I could try out some of my own ideas.
10. Independence: I could work alone on the job.
11. Moral values: I could do the work without feeling that it is morally wrong.
12. Recognition: I could get recognition for the work I do.
13. Responsibility: I could make decisions on my own.
14. Security: The job would provide for steady employment.
15. Social service: I could do things for other people.
16. Social status: I could be "somebody" in the community.
17. Supervision-human relations: My boss would back up his men (with top management).

18. Supervision-technical: My boss would train his men well.

19. Variety: I could do something different everyday.

20. Working conditions: The job would have good working conditions.

Betz (1969) tested the hypothesis that an individual's satisfaction with his job is a function of the correspondence between the reinforcer system of the work environment and the individual's needs. Betz found positive correlations between the degree the reinforcer system (available rewards) matched the individual's needs (desired rewards) and job satisfaction. The need-reinforcer correspondence scores and the job satisfaction scores for a group of subjects in a retail organization were dichotomized at the median of each of the two distributions (i.e., the need-reinforcer correspondence distribution and the job satisfaction distribution). According to the Theory of Work Adjustment, the individuals falling in the high half of the correspondence distribution should also be in the high half of the satisfaction distribution, while those low in correspondence should be low in satisfaction. The results were 68 percent correct predictions for cashiers and 73 percent correct for sales clerks, thus supporting the Theory of Work Adjustment.

Conceptual Models of Job Satisfaction

So far we have discussed three very different ways of conceptualizing determinants of job-related satisfaction: as stemming from factors in the individual, in his environment, or in his interaction with environment. Within each of these three approaches, the theoretical formulations considered were aimed primarily at delineating the causes of positive and negative feelings a person may have about his job situation. Somewhat more global considerations guide and direct much of the empirical research reviewed in the previous section; these more basic considerations involve the need fulfillment model, the equity model, and the frame of reference model.

Need Fulfillment Model

In simplified terms, the need fulfillment model holds that people have positive or negative feelings about their job situation to the extent that elements in their job environment are available to gratify their needs. One of the most fully articulated need fulfillment models is the Theory of Work Adjustment discussed above to illustrate an approach that conceptualizes determinants of job-related satisfaction stemming from the interaction between an individual (with his needs) and his job environment (with its reinforcers). Feelings of satisfaction depend largely on the degree of correspondence between what an individual needs in his environment and what the environment provides as reinforcers.

There are two variants of the general need fulfillment model--a subtractive model and a multiplicative model (Vroom, 1964). According to the subtractive model, job satisfaction is a function of the discrepancy between what an individual needs from his job (pay, prestige, security, etc.) and the opportunity for relevant rewards in the work situation. For example, according to this model an individual who wants $3.00 an hour and receives $3.00 would be satisfied with his pay, but if he only receives $2.50 he would be dissatisfied.

Vroom (1964) criticizes the subtractive model because it does not differentiate between the contribution to overall satisfaction of an important need which is satisfied, and a need which is satisfied but unimportant to the individual. Vroom argues that the satisfaction of an individual's need for job security will have a greater effect on his overall job satisfaction if job security is important to him than if it is unimportant. The subtractive model cannot deal adequately with cases like the individual who would like job security but for whom the satisfaction of other needs such as independence and responsibility are more important. This individual's satisfaction (or his decision to stay in his job) should depend more on his obtaining an independent, responsible position than on his obtaining job security.

The multiplicative model avoids this problem by including a third component: the importance to the individual of satisfying the need. It assumes that need satisfaction is a function of the product of (a) need importance, times (b) the discrepancy between what an individual desires from his job and outcomes provided by the job. In this model, the importance of the need weighs need satisfaction according to the impact satisfaction of that need has on overall job satisfaction.

Both models are supported empirically. Morse (1953) and Kuhlen (1963) support the subtractive model. In their studies the discrepancy scores were positively correlated with measures of promotional opportunity (in the former study) and overall satisfaction (in the latter). Vroom (1960) and Schaffer (1953) support the multiplicative model. In general, the results of their studies indicate that the greater the relative strength of the need (relative to other individuals in the sample), the greater the positive correlation between a measure of the degree need is satisfied and overall job satisfaction.

Wanous & Lawler (1972) compared measures derived from both the subtractive and multiplicative models. Measures of satisfaction for each of twenty job facets (esteem, growth, security, variety, pay, etc.) were obtained for both models and then the measures were correlated with a direct measure of satisfaction (i.e., "How satisfied are you with the pay you receive?") for each of the twenty facets. There was no difference over the twenty facets in the correlation between the direct measure of satisfaction and the measures derived from the two models ($r = .44$). Wanous and Lawler conclude, along with Ewen (1967) and Mobley & Locke (1970), that need fulfillment

(the subtractive model) reflects the importance of a need and that multiplying need fulfillment by need importance will not necessarily improve predictive ability.

Equity Model

According to Equity Theory (Adams, 1963a), job satisfaction is a function of the degree the level of job rewards matches the worker's perceived equitable level of rewards. Vroom (1964) lists six conditions which, through their interaction and combination, determine the level of rewards which the individual perceives as equitable:

1. His beliefs concerning his qualifications (experience, education, effort, skill, etc.)

2. His convictions that his qualifications merit reward (pay, prestige, authority, security, etc.)

3. His beliefs concerning the degree to which he receives rewarding outcomes from his job

4. His beliefs concerning the degree to which others receive rewarding outcomes from their jobs

5. The extent he compares himself with these others (Vroom, 1964, pp. 171-172).

The equity model assumes that under conditions of perceived equity (individual perceives his rewards relative to his inputs equal to rewards others receive relative to their inputs) the individual experiences job satisfaction, and that under conditions of perceived inequity (overreward or underreward relative to another) the individual experiences job dissatisfaction. The results of a study by Pritchard, Dunnette & Jorgenson (1972) support this hypothesized relationship between equity and job satisfaction. In this study individuals who were equitably paid were more satisfied than individuals who were either underrewarded or overrewarded.

Frame of Reference Model

The frame of reference model differs in that it focuses not on the individual's desires, but on the discrepancy between the perceived characteristics of his job and some external standard of comparison (Smith, Kendall, & Hulin, 1969; Korman, 1971). This standard of comparison might be alternatives to the present job, characteristics of previous jobs, or opinion of a reference group which the individual respects. Different persons encountering the same objective job situation with different frames of reference may not only evaluate the situation differently, but may select different aspects of the job situation as pertinent to their evaluation.

A study by Hulin (1966) supports this model. Hulin administered a measure of job satisfaction to female clerical workers employed in three hundred geographically dispersed catalogue order offices. Individuals' job satisfaction scores were then correlated with indices of economic environment (prosperity, unemployment, slums, farm productivity, and general economic condition) of the communities. The results indicated that environment did bear a significant relationship to job satisfaction. With job conditions held constant, individuals living in prosperous communities tended to be less satisfied with their jobs than those living in poor communities. Katzell, Barrett & Parker (1961) in a study of warehouse workers employed in a number of different locations reported similar findings.

Organizational Consequences of Job Satisfaction

Although the major thrust of the theoretical and empirical research in the area of job-related satisfaction seems directed toward understanding what determines positive or negative feelings about one's overall job situation, a secondary research thrust, more empirical than theoretical, seeks to specify the organizational consequences of job satisfaction. Even if feelings of satisfaction or dissatisfaction were not related to any objective index of organizational effectiveness, the prevailing values in a democratic society dictate a study of job-related satisfaction: it is better that people feel satisfied than dissatisfied. But employee satisfaction is even more important for the organizational administrator when it is related to things like accident rates, grievances, absenteeism, turnover, and productivity which bear on the organization's efficiency, effectiveness, and probability of survival. In this section we examine some research in this area in an effort to summarize the major findings with respect to the impact of job satisfaction and dissatisfaction on indices of organizational functioning.

Accidents

What little research done on accidents involving personal injury and job satisfaction indicates in general that the occurrence of accidents is negatively correlated with job satisfaction, if at all (Hill & Trist, 1953; Stagner, Flebbe & Wood, 1952; Fleishman, Harris & Burtt, 1955). Hill & Trist (1953) interpret this to indicate that an accident is a mechanism which allows the worker to withdraw from a dissatisfying work situation. Stagner et al. (1952) and Vroom (1964) take a more conventional view, hypothesizing that accidents are a cause of dissatisfaction.

Grievances

A grievance is an individual's response to an unpleasant element in the work situation, and consequently, grievance rates sometimes are used as operational definitions of satisfaction. However, there is little direct data that relates frequency of grievances to job satisfaction. Some indirect evidence exists. Fleishman & Harris (1962) found that high grievance rates occurred in work groups with unpopular supervisors, a condition associated with low job satisfaction (Halpin & Winer, 1957; Halpin, 1957; Seeman, 1957; Likert, 1961). Ford (1969) and Maher (1971) present evidence that job enrichment, a program which generally leads to increased job satisfaction, is accompanied by decreases in grievances. This evidence, although indirect, presents a basis for predicting that the occurrence of grievances is negatively correlated with job satisfaction.

Absenteeism

Vroom (1964) reviews ten studies which indicate a low negative relationship between job satisfaction and frequency of absences. The nature of the absenteeism measure has been found to influence the size and direction of relationship (Kerr, Koppelmeir, & Sullivan, 1951; Metzner & Mann, 1953). For example, a stronger negative relationship occurs when the absence measure is either frequency of absence or number of unexcused absences, rather than total days absent (a measure heavily influenced by long illness). The predominant explanation of the relationship between absences and satisfaction is that a dissatisfying work situation will cause the individual to avoid work whenever possible. Research using either a measure of frequency or unexcused absences has generally found a negative correlation between absenteeism and job satisfaction.

Turnover

Since feelings of job satisfaction are assumed to reflect how much a person likes his present job, job satisfaction should be related to turnover (voluntary withdrawal from the work organization). Reviews of research investigating the relationship between satisfaction and turnover found the higher the individual's job satisfaction, the lower the probability he will quit his job (Brayfield & Crockett, 1955; Vroom, 1964). More recent studies confirm these findings (Hulin, 1968; Waters & Roach, 1971; Taylor & Weiss, 1972). Turnover is one index of organizational effectiveness consistently and unequivocally related to job satisfaction.

Productivity

Vroom (1964) reviews twenty studies correlating job satisfaction with some measure of performance or productivity (including those reviewed by Brayfield & Crockett, 1955). Although most of the correlations reported were positive, the median correlation was only .14, and Vroom suggests this has little or no theoretical or practical value.

Porter & Lawler (1968) and Locke (1970), while not arguing that these results have practical value, do believe that their consistency (mostly positive correlations) indicates some theoretical importance. They argue that productivity should be viewed not as a result of job satisfaction, but rather as a cause of satisfaction. They agree with Vroom (1964) that there is no simple relationship between performance (or productivity) and satisfaction, and they hypothesize that when the receipt of valued rewards is directly contingent upon high performance and the individual is capable of high performance, job satisfaction will be significantly related to performance. Porter & Lawler (1968) and Locke (in press) argue that the small relationships found between satisfaction and performance could be the result of the individual's perception that high performance will not lead to obtaining valued rewards, or that rewards are not directly contingent upon high performance. Therefore, job satisfaction may have some theoretical relationship to performance, but in practice, the relationship is so low that no practical utility for predicting job performance is obtained. The notion that satisfaction is a result of performance has intuitive appeal but is yet too new to have been extensively tested.

Summary of Organizational Consequences

Of the five kinds of indices--accidents, grievances, absenteeism, turnover, and productivity--potentially reflecting organizational consequences of job satisfaction, turnover is most consistently related to levels of job satisfaction and dissatisfaction. Absenteeism and grievance rates also show some relationship with job satisfaction, but not as much or as consistently as turnover. Accident rates and productivity, indices which in the past were viewed as consequences of job satisfaction, are now viewed in some quarters as determinants of job satisfaction.

CHAPTER 4

MORALE: THEORETICAL PERSPECTIVE

A great deal of terminological confusion enshrouds "morale," at least when psychologists use the term. For example, Guion (1958), in remarks to a psychological symposium on industrial morale, listed seven different commonly used definitions, concluded none of them was adequate, and proceeded to offer yet an eighth, which, he hastened to add, would probably not please the other participants in the symposium. He was evidently correct--they did not appear enthusiastic about his definition and in subsequent papers they offered definitions of their own. The glaring lack of consensus among psychologists on a definition for morale is also evident in some early writings published during World War II and some currently used textbooks of industrial psychology.

Without agreement on even a rough conceptual definition, there can hardly be a well-elaborated theory or a set of systematically collected data about morale. To be sure, some psychologists have used the term in studies of job satisfaction and job attitudes. For those cases where morale was used synonymously with satisfaction as defined previously, we incorporated the data and findings into the satisfaction section of this report.

Since there are no coherent psychological theories of morale and no extensive body of empirical literature researching morale, if morale means something different from satisfaction, this chapter is both theory-free and data-free. However, many writers have discussed morale conceptually in an effort to come to a useful definition, but had no success at reaching a happy consensus. Suspecting that psychologists might not use the word in the same way as military authors, we sampled some of the voluminous literature written by authors who discuss morale in the military context. We found that they write about what they consider to be important aspects and ingredients of morale, generally in an effort to explicate their favorite definition. Also, they discuss determinants of morale and imply that a commander who can successfully manipulate these determinants will be blessed with troops of good morale. And finally, they list indicators of morale--ways a commander ascertains the quality of his troops' morale. The military literature, although often less formal and scientifically rigorous than the psychological literature, provides valuable insights into what morale means to military organizations.

Overview

The combined writings of psychologists and military authors on morale suggest that a high-morale group is cohesive with high levels of esprit de corps and unit pride. It has a clearly defined goal to which its members

are totally committed. They persist tenaciously, undaunted in the face of even the greatest adversity. They sense that they are advancing toward their goals and are hopeful of reaching them. They cling to ideals like patriotism, honor, and loyalty which are bound up somehow in the group's goal. The group members are cheerful even in the most trying conditions which they shrug off with satiric laughter. They are contented, free from worries or doubts, perform bravely, and are contemptuous of danger. Disciplined and self-confident, they willingly sacrifice themselves for the welfare of the group.

The quality of their morale is determined by factors that impact their physical well-being; their pride in the military; cohesiveness of their unit; strength of their ideological convictions; satisfactoriness of their military careers; quality of their leadership; amount and nature of information communicated to them; and some of their feelings such as self-importance, achievement, and competence.

It is possible to ascertain the quality of morale by noting rates of desertions, AWOLs, and requests for transfer; records of disciplinary actions; degree of cheerfulness; hospital reports of illnesses and accidents; general smartness of appearance; performance in jobs, marches, battles, and athletic contests; and esprit de corps.

Morale is so general, pervasive, and complex that apparently any mental state which bears on a soldier's performance reflects his morale, anything at all in his environment can affect his morale, and any aspect of his performance indicates quality of his morale.

A construct as general and complex as this is not likely to be readily amenable to rigorous scientific analysis. It probably explains too much to be heuristically useful and might be too internally complex to be empirically workable.

It might be easier to conceptualize an explicitly multi-faceted construct--or rather set of constructs--depicting morale. For example, much of morale seems to consist essentially of motivation (goals, determination, persistence, tenacity, progress), satisfaction (cheerfulness, contentment, freedom from worry, satisfaction of physical needs for food, water, rest, etc.), and group cohesiveness (solidarity, cooperation, self-sacrifice for the group, esprit de corps, traditions). A conceptual framework which includes these three distinct constructs and which gives some attention to their interrelationships in the context of the Army probably provides a tighter and more workable model than the loose conglomeration of informal associations suggested by the commonly used definition: "A state of mind with reference to confidence, courage, zeal, and the like, especially of a number of persons associated in some enterprise, as troops (Munson, 1921, p. 3)."

Morale According to Psychologists

As a world crisis developed in the late 1930s, concern with the state of American morale increased. The Society for the Psychological Study of Social Issues (SPSSI) published a book and sponsored discussions which were attended by prominent behavioral scientists propounding their views of morale. One of these was a round-table discussion in which the participants were R. Likert, G. Bateson, P. F. Lazarsfeld, K. Lewin, and G. Watson. Summarizing the conclusions of this discussion, Watson (1942) writes that "Good morale is shown by the stamina with which people stand up under punishment and by the energy with which they strive to realize their ideals. Poor morale is evidenced by those who can't take it and who become easily discouraged and disillusioned (p. 30)." The discussants decided that morale had five major components:

1. A clearly defined, positive goal: People need hope and something to look forward to in order to sustain high morale.

2. Togetherness and mutual support: People need to feel a sense of common purpose with others in the group.

3. Knowledge of common danger: High morale requires shared danger which can arouse the individual and the group into a higher state of energy mobilization (an aspect of morale).

4. Something each can do: There must be a conviction that it is possible to overcome the danger and achieve the goal and that each individual shares important tasks.

5. Approaching the goal: There must be a sense of progress toward the goal.

In another meeting some twenty years later, a different group of psychologists assembled to present papers on industrial morale (Guion, 1958). It was evident that although the participants were all ostensibly discussing morale, they were all talking about somewhat different things. Each seemed to have his own notions about morale, and none of their definitions corresponded exactly to what the SPSSI round-table discussants concluded about morale, although there was some overlap. Guion (1958) attempted, not altogether successfully, to cut through the conceptual chaos in the symposium by listing seven definitions he had come across: (1) the absence of conflict, (2) a feeling of happiness,(3) good personal adjustment, (4) ego-involvement in one's job, (5) cohesiveness of the group, (6) collection of job related attitudes, (7) acceptance of the group's goals. Not satisfied with these definitions, he offered his own:

> Morale is the extent to which an individual's needs are satisfied and the extent to which the individual perceives that satisfaction as stemming from his total job situation (Guion, 1958, p. 62).

Other participants offered their own definitions:

> Morale is an index of the extent to which the individual perceives a probability of satisfying his own motives through cooperation with the group (Stagner, 1958. p. 64).

> Morale is a condition of congruent motivation among members of a group, resulting in relatively high levels of energy expenditure toward common goals having positive valence (Katzell, 1958, p. 73).

In all these definitions, three factors are prominent. First, there is the element of satisfaction. Morale connotes "a feeling of happiness," "the extent to which an individual's needs are satisfied," and a "collection of job related attitudes." Motivation, or some aspect of motivation, is a second element shared by these definitions. "A condition of congruent motivation," "high levels of energy expenditure," and "acceptance of the group's goals" reflect the motivational component and the emphasis on energization. The third major element of morale is the group. It is the group's goals that must be accepted, it is through cooperation with the group that one must perceive a probability of satisfying his own motives, and it is toward common goals that behavior is directed and energized.

Blum & Naylor (1968), in their recent textbook of industrial psychology, argue vigorously that "although morale is related to job satisfaction, it is not the same thing (p. 391)." They attempt to explicate morale by emphasizing group and motivational aspects. It has four main determinants: foremost is a feeling of togetherness. The other three are the need for a goal, observable progress toward the goal, and specific, meaningful tasks necessary for goal achievement distributed among the group members.

In line with their emphasis on cohesiveness, Blum and Naylor note that sociometry is a technique which can be used to measure morale. By measuring the extent to which members of a group tend to choose each other as "best workers," "the most fair-minded person," or as something else with an evaluatively positive connotation, one can develop sociograms and compute an index of the group's cohesiveness. And, of course, the greater a group's cohesiveness, the greater its morale, according to Blum and Naylor.

In their discussion of its determinants, Blum and Naylor imply that morale has the following characteristics:

1. It is tied directly to the group: for morale to be high, the group must be cohesive.

2. It is related to goals, and, hence, to motivation: for high morale, the group must have a clearly defined goal that is unequivocably understood.

3. It is related to motivation in another way as well: high morale requires a sense of progress toward the group goal. Cast into the language of expectancy theory, we can translate "sense of progress toward the goal" to read "relatively high expectancy of a valued outcome."

4. It is related to feelings that an individual has when working toward the group goal: that the individual's tasks should be meaningful implies feelings of self-importance, achievement, competence, and responsibility. Morale appears to include elements of job satisfaction or feelings of satisfaction from the work itself.

Morale According to Military Authors

Napoleon reputedly said, "In war, the morale is to the physical as three is to one (Munson, 1921, p. 2)." Apparently, hardly any military commander doubts that morale is a potent force in determining troop effectiveness. "The maintenance of morale is recognized in military circles as the most important single factor in war (p. 92)," writes Baynes (1967). Munson (1921), a former Brigadier General on the General Staff, writes:

> That their mental state, their will to do, their cooperative effort, their morale--all of which are synonymous--bear a true relation to their output, productivity, and the success of the joint undertaking, is so obvious and has been proven so often as to require no supporting argument (p. 2).

To get a better flavor of morale as used in military organizations, we appealed to authors like J. Baynes (1967), who wrote about morale in the Second Scottish Rifles at the Battle of Neuve Chapelle, 1915: E. G. Boring (1945), editor of Psychology for the Armed Services; J. T. MacCurdy (1943), who lectured to British officers on personnel selection and training; N. C. Meier (1943), author of Military Psychology; and E. L. Munson (1921), who served as Brigadier General on the General Staff and as Chief of the Morale Branch in the War Plans Division. There is enough overlap among these authors that rather than review each one separately, we draw from their pooled contributions in discussing the aspects, determinants, and indicators of military morale.

Aspects of Military Morale

Munson (1921) offers a fairly representative definition of military morale: "A state of mind with reference to confidence, courage, zeal, and the

like, especially of a number of persons associated in some enterprise, as troops (p. 3)." Military authors describe some facets of this complex state of mind when they list the ingredients of morale:

Sense of advancing toward a worthwhile goal. There is a defined, group goal which is seen as both worthwhile and attainable. The men know their objectives and feel they are progressing toward them.

Exaltation of ideals. The group objectives represent strong ideals, perhaps valued more than one's own life. Victory in a battle, for instance, may mean the preservation of freedom, democracy, and a way of life. High morale is often associated with patriotism.

Determination to reach the goal. More than mere desire or will, there is a fervent determination to reach objectives. The will to win is reflected in high levels of tenacity, persistence, staying power, and fortitude.

Attitude toward adversity. Troops with high morale are reconciled to "scorning delights and living laborious days," and tenacious in the face of adversity, expressing an attitude of "Pour it on. . . I can take it. . . nothing can break me." They show a sense of humor under stress and laugh at their miserable plights.

Contentment and satisfaction. They are free from discontent and worry, and feel generally ebullient and cheerful.

Courage. High morale connotes both moral and physical courage. The troops feel brave and act bravely. They show a contempt for danger.

Discipline. Troops with high morale are disciplined and self-controlled. They do not feel overly impulsive, rash, or self-indulgent.

Self-confidence. They have confidence in their units, themselves, and their ability to win. They have self-respect.

Feelings of group cohesiveness. They feel accepted by and accepting of their group which is characterized by solidarity, cooperation, mutual support, teamwork, and togetherness. The group member is oriented toward group welfare and would readily self-sacrifice for the group. He feels a sense of esprit de corps and pride in its history, achievement, traditions, ideals, and symbols.

Determinants of Military Morale

Munson writes, "Every physical thing entering into the environment of the soldier, and the expressed state of mind of every person with whom he comes in contact, affects his morale (Munson, 1921, p. 51)." The long

lists of determinants that he and the other military authors have generated support his opinion:

Physical welfare and subsistence. Morale is dependent on the adequacy of clothing, food, water, warmth, rest, and shelter. Facilities for cleaning, hygiene, medical care, physical fitness, laundry, transportation, and housekeeping impact morale as do pay, insurance allotments, pension schemes, and welfare services. Also, recreational facilities such as athletics, movies, PX, clubs, library, reading, and letterwriting facilities have an effect. And finally, the adequacy of policies for visitors, leaves, passes, and furloughs are important.

Pride in the Army. Morale is affected by the many factors that influence an individual's pride in the Army. Included are such factors as training which fosters trust and esprit de corps; knowledge of the Army's military successes; martial music, formal ceremonies, and knowledge of military traditions; and expressed attitudes of one's family, friends, and the public at large toward the Army.

Unit cohesiveness. Interunit competition is one way to develop solidarity and improve morale. Another is to instill a sense of pride in the unit, its history, traditions, or identifying emblems.

Individual's ideology. Morale may vary according to the individual's patriotism, sense of honor, sense of loyalty to an ideology defended by the Army, and whether he feels a "rightness of purpose" with respect to the Army's overall objectives.

Task, job, and career satisfaction. Morale depends to some extent on whether the individual is satisfied with his job, whether he has been placed in a job suited to his abilities and interests, whether he feels his work is important and meaningful, whether he can do well on his job and receive recognition in the form of awards and letters of commendation, whether his equipment is adequate, whether he has been well-trained for his work, and whether he sees opportunities for promotion and advancement.

Leadership. Since the leader is in a position to manipulate many of the determinants mentioned here, he may be the single most important factor influencing morale.

News and information. Uncertainty is detrimental to morale; knowing is facilitory. Morale is influenced by whether the individual can receive news about the welfare of his family and friends, and about his own and the enemy's positions and relative strengths. Thus, propaganda influences morale, as well as the availability of communications through mail, press, radio, and telephone. Although any news at all is better than no news, good news is obviously better than bad news.

Miscellaneous feelings. Feelings of self-importance, self-respect, achievement, confidence, and competence that come from performance on the job and treatment by leaders and fellow group members have an impact on morale.

Indicators of Military Morale

Authors who write about morale in the military generally mention a number of ways for a commander to gauge troop morale. These indicators include both firsthand observation of the troops' behaviors and more indirect signs like administrative records of relevant behaviors:

Indications of desires to leave the unit or service. These are administrative records of a unit's desertion rates, AWOL rates, and requests for transfer. When these rates are low, morale is likely high.

Indicators of disciplinary action. High numbers of courts-martial, civil arrests, and prisoners in the guardhouse are signs of low morale.

Signs of cheerfulness and high spirits. Evidence of singing, jocularity, and wit indicate high morale. Satirizing prevailing miserable conditions and showing cheerful determination to stick it out come what may are signs that morale is high. In comfortable surroundings, cheerfulness indicates high morale possibly because of the physical satisfactions inherent in a comfortable environment, whereas in a miserable, uncomfortable environment, cheerfulness indicates high morale from a refusal to be demoralized.

Occurrence of illness and accidents requiring hospitalization or medical care. When the numbers of hospital reports, accidents and illnesses, whether real, faked, or psychosomatic, are up, morale is said to be down--for two reasons. First, low morale and its concomitant general apathy lead to slackness in hygiene, which in turn leads to illness. Second, when morale is high, people are more reluctant to give in to minor illnesses.

General smartness of appearance. The smartness of a man's personal appearance on and off duty: his grooming, the smartness of his salutes, the neatness of the barracks, and attention to hygiene, all indicate quality of morale.

Performance indicators. Where morale is low, men take little pride in the performance of their duties. They are sloppy in understanding and carrying out orders, they perform poorly in athletic and training competitions, on marches, and in battles. They are negligent about the care of their equipment. They are reluctant to sacrifice for the group or to accept responsibility.

Esprit de corps. When morale is high, men express pride in the history, traditions, and achievements of their units. They brag about their accomplishments and their units.

CHAPTER 5

THEORETICAL SUMMARY AND INTEGRATION

In the preceding chapters of this report, we reviewed in some detail the major conceptual and theoretical issues in the areas of job motivation, satisfaction, and morale. Our hope was to obtain a clear understanding of these constructs as the first step toward measuring them accurately enough to facilitate and monitor future efforts for change and improvement in the Army.

This chapter takes a wider view. We recapitulate the major theoretical and conceptual issues to get an overall flavor for the broader notions behind motivation, satisfaction, and morale. After presenting reasonable definitions and the general conceptual issues surrounding each term, we examine briefly how each relates to the other--how the three constructs compare and contrast.

Motivation

Motivation is a construct used to explain the direction, vigor, and persistence of behavior, which cannot be accounted for by ability or by overwhelming demands or constraints imposed by the environment.

There are classes of environmental stimuli, individual needs, and consummatory behaviors that motivate individuals to perform certain behaviors with varying degrees of vigor and persistence. That is, people will approach some kinds of environmental stimuli and avoid others in order to gratify their needs and have an opportunity to perform certain kinds of consummatory behaviors.

These environmental stimuli, states of individual need gratification, and consummatory behaviors--motivation content factors--vary according to how desirable they are for different individuals on different occasions. Whether and how much a particular motivation outcome is desirable for a particular individual depends on a large number of determining circumstances:

Previous experience. One of the major determinants of outcome valence for an individual is his previous experience with that outcome. How much a person desires an outcome can be influenced by how strongly he enjoyed it in the past. Someone who had an unpleasant experience with "travel in a foreign country" will not desire future travel opportunities.

Individual differences. Another major class of factors influencing outcome valence is individual differences in the kinds of outcomes people

generally prefer. For instance, perhaps because of early family experiences, one individual may place a high value on recognition and approval from authority figures, while another individual might be relatively indifferent to such approval. Then, for the first individual, supervisory approval and recognition would be more desirable than it would for the second.

Instrumentality. How much an individual desires to obtain an outcome like pay can depend on how instrumental he thinks pay is for obtaining other desired outcomes, such as PX commodities or entertainment. The more he desires these other outcomes and the greater the connection he sees between these other outcomes and pay, the more he will desire pay.

Attributions of success and failure. With outcomes related to feelings of success and task achievement, the desirability of an outcome like military decoration may also depend on whether the person attributes success to ability, effort, luck, or task difficulty. If he believes that task success and obtaining the decoration is mostly a matter of ability and effort, he is more likely to desire it than if he believes it to depend only on luck or task difficulty.

Expectancy. The desirability of outcomes that are intimately tied to feelings of success and task achievement may be determined by a person's prior expectancy of succeeding. For individuals with high needs for achievement, the desirability of outcomes like citations probably depends to some degree on the prior expectancy of obtaining them. Citations that are easy to get (high prior expectancy of success) are likely to be less desirable and coveted than those that are hard to get (low prior expectancy).

One important process by which these outcomes or motivation content factors influence behavior is the expectancy process. That is, different people in different situations have varying beliefs about the likelihood that a particular act will result in a particular outcome. These expectancies, like outcome desirabilities, also have multiple determinants:

Environmental cues. A person's expectancy of obtaining an outcome such as accomplishment (some specified level of performance) after exerting effort can depend on information from his environment about the probability of achieving it. For example, a person's expectancy of being named "top soldier of the month" will probably be higher if ten "top soldiers" are to be chosen from his company than if only two are to be chosen. Also, his expectancy of getting a pass as a reward for being "top soldier" should be higher if eight such passes will be handed out rather than one.

Past experience. A person's past experiences in similar situations also influence his expectancies. For example, the expectancy of getting a

certain score on the rifle range is partially determined by the person's previous experience with firing at targets. Also, the expectancy of receiving an outcome like a word of praise from his superiors if he does obtain a good score on the rifle range will be influenced by how consistently he has received praise in the past.

Individual differences. A person's expectancy of "task achievement" or of a given level of performance following the exertion of effort in a particular situation may be partially determined by individual differences like self-esteem or generalized feelings of competence and self-confidence. People with higher levels of self-esteem may generally tend to expect to succeed more than people with less self-esteem.

The expectancy motivation process involves the combining of the desirabilities and expectancies of all outcomes that a person perceives as relevant to a particular behavior. Thus, the probability that a person will decide to perform a particular act (like shooting at a target on a rifle range), how vigorously he performs (how hard he tries for a good score), and how persistently he performs (how long he keeps on trying for a good score) depend at least partly on the sum of the products of desirability times expectancy for all the outcomes he perceives as salient in that situation.

A second motivational process by which outcomes can influence behavior is the equity process: a person will perform certain acts or behaviors to reduce feelings of inequity which arise from his perception that his ratio of outcomes (what he gets out of his job) to inputs (what he puts into it) is different from the ratio of outcomes to inputs of someone else. The stronger the feeling of inequity, the greater the motivation to reduce it. Some of the major determinants of such feelings of inequity are:

Referent other. The degree of inequity an individual feels depends on his choice of "referent other" with whom he compares his ratio of outcomes/inputs. For instance, an enlisted person in the Army is likely to feel more inequity if his referent others are civilian college students (whom he might perceive as having relatively more outcomes than inputs in comparison to him), than if his referent others are jobless friends from a slum section of his home town (whom he might perceive as having relatively less outcomes than inputs in comparison to him).

Situational cues. Situational cues that communicate information about his own outcomes and inputs, and about his referent others' outcomes and inputs can also influence how much inequity a person feels. If an enlisted man's referent others are his civilian friends who have little job training or formal education, he is likely to feel less inequity if he reads in a newspaper that the unemployment rate is up and his civilian friends cannot get jobs, than if he reads that the economy is booming and there are plenty of good civilian jobs for all.

Individual differences. People differ according to their perceptions of things as inputs or as outcomes. For instance, "responsibility" can be viewed by some as an input but for others as an outcome. Since feelings of inequity or equity result from perceptions of ratios of outcomes/inputs, such fairly stable individual differences may impact how much inequity a person feels.

These motivational processes (expectancy and equity) and content factors (outcomes) play a major role in the likelihood that a person will decide to perform a particular act, how much effort he intends to exert, how long he intends to persist, and whether he will decide to accept a particular goal and actually try for some specified level of performance or achievement. Given that he is committed to a goal and intends to try for it, the harder the (i.e., the loftier his performance aspirations), the higher his actual level of performance is likely to be.

Job Satisfaction

Job satisfaction is a set of feelings of varying positive or negative affect that a person has with respect to different aspects of his overall job situation.

These positive or negative feelings are determined both by factors in the individual (his needs) and by factors in his job environment (rewards). There are three somewhat different ways of conceptualizing how feelings of satisfaction and dissatisfaction at the work place come about; that is, in terms of a need fulfillment model, an equity model, and a frame of reference model.

The need fulfillment model holds that feelings of satisfaction and dissatisfaction depend on the extent to which elements in the job environment are available to gratify people's needs. Such a model, which considers individual and environmental factors simultaneously as determinants of job satisfaction, seems more heuristically promising than models that focus exclusively on individual factors or on environmental factors. The need fulfillment model predicts that enlisted men whose needs correspond closely to environmental reinforcers available in the Army are more likely to be satisfied with Army life. For example, the soldier who both desires to exercise leadership functions and whose job affords the opportunity to lead would probably be more satisfied with his job than a soldier with the desire to lead but not the opportunity, or the opportunity to lead but not the desire.

The frame of reference model differs from the need fulfillment model in that it seeks to explain satisfaction not in terms of the match between needs and reinforcers, but rather in terms of the match between an external standard of comparison and available reinforcers. According to the frame

of reference model, a soldier's job satisfaction depends on how he evaluates his perceived job characteristics in comparison to his external (external to his present job in the Army) standards or frame of reference. Thus, a soldier whose standards of comparison include a job he held prior to joining the Army in which he had substantial responsibility and decision-making authority would probably be less satisfied in a low level Army job with very little decision-making power than would another soldier whose previous jobs before joining the Army had very little decision-making power.

In a sense, the equity model is a special case of the general frame of reference model. The equity model suggests that a person's standard of comparison is a referent other with whom the person compares ratios of job inputs to job outcomes. Feelings of inequity, which result when the person feels either underrewarded or overrewarded for his job inputs in comparison to a referent other, lead to feelings of dissatisfaction. The list of factors determining feelings of satisfaction or dissatisfaction in the equity model parallels the list we presented earlier in discussing motivational implications of equity formulations. These factors include choice of referent other, situational cues about job inputs and outcomes of both the person and his referent other, and individual differences in perceptions of job elements as inputs or outcomes. The greater a soldier's feelings of inequity, as determined by these factors, the more likely he is to be dissatisfied.

Morale

The term "morale" as used in the military is an exceedingly complex concept that seems to include both notions of motivation and satisfaction as well as group-related notions like cohesiveness. Since we lack a more succinct and rigorous definition, let us define morale according to what military authors include as its aspects. Morale, then, is a state of mind characterized by:

- Sense of advancing toward a worthwhile goal
- Exaltation of ideals
- Determination to reach the goal
- Positive and adaptive attitudes toward adverse conditions
- Feelings of contentment and satisfaction
- Courage
- Discipline
- Self-confidence
- Feelings of group cohesiveness.

According to military authors, this complex state of mind has a large number of determinants subsumed under the following general categories:

. Physical welfare and subsistence
. Pride in the Army and the unit
. Unit cohesiveness
. Individual's ideology
. Job related satisfaction
. Leadership
. News and information.

Theoretical Integration

The two constructs, motivation and satisfaction, both rely heavily on the notion of outcome, and they both share concepts drawn from similar theoretical perspectives. To summarize the similarities and differences between satisfaction and motivation, we list some simple parallels drawn between the major theoretical issues previously discussed.

Motivation	Satisfaction
1. Outcomes	1. Outcomes
a. People are motivated to obtain desired environmental rewards. b. People are motivated to gratify their needs. c. People are motivated to perform consummatory behaviors	a. People are satisfied when they have obtained desired environmental rewards. b. People are satisfied when their needs are gratified. c. People are satisfied during and immediately after performing consummatory behavior.
2. Expectancy Theories	2. Frame of Reference Model
People are motivated to perform acts which they expect to result in desired outcomes.	People are relatively more satisfied with a given outcome if it matches or exceeds in desirability what they expected to obtain according to their prior experiences or frame of reference.
3. Equity Theories	3. Equity Theories
People are motivated to reduce feelings of discomfort or inequity which result when they perceive their ratio of inputs/outcomes as different from that of a referent other.	People are dissatisfied when they feel that their ratio of inputs/outcomes is inequitable relative to the ratio of inputs/outcomes of a referent other.

The constructs of motivation and satisfaction are related, but they are not conceptually identical. The primary emphasis of motivational concepts is to explain the direction, vigor, and persistence of behavior--to explain why people perform one behavior rather than another and why they perform a given behavior as vigorously and persistently as they do. On the other hand, the primary emphasis of job satisfaction concepts is to explain feelings of varying positive or negative affect that people have toward aspects of their overall job situation--to explain why people have these feelings and how they are likely to express them in the context of the formal work organization. People are motivated to perform some act with some level of vigor and persistence. People are satisfied with various aspects of their job situation. They experience feelings of varying positive or negative affect when they think about their job situation.

Although motivational concepts focus primarily on behavior while satisfaction concepts focus mostly on feelings, there is also a feeling aspect to motivational terms and a behavioral aspect to job satisfaction. It is the notion of valence in motivation theories that includes this feeling aspect. Outcomes (whether conceptualized as states of need gratification, as rewarding environmental stimuli, or as consummatory behaviors) play a major role in motivational theories precisely because they vary for different individuals according to their valences--according to how desired they are. They are desired according to how much satisfaction a person anticipates he will feel when or if he has those outcomes.

However, a person may not necessarily experience as much satisfaction when he actually has an outcome like promotion to a higher rank as he anticipated. That is, there is not necessarily a one-to-one correspondence between valence and satisfaction. A person might find, for example, that being a sergeant is not as satisfying as he expected or that it is much better than he expected. In either case, the amount of satisfaction he feels on being promoted will likely impact his valence for his next promotion. Porter and Lawler (1968) make this theoretical link when they suggest that a person's valence for a reward (outcome) is partially determined by how much satisfaction he felt when he had that reward before. Thus, although both valence and satisfaction connote feelings of varying positive or negative affect, valence implies the affect (or satisfaction) that is anticipated, while satisfaction implies the affect that is actually experienced.

The behavioral aspects of satisfaction concepts derive from the idea that people who experience dissatisfaction will probably act to reduce these feelings. Thus, if they are generally dissatisfied with their overall job situation, they might submit grievances, avoid their jobs by absenteeism, or terminate employment altogether. In other words, just as people are

motivated to seek satisfying experiences (to obtain desired outcomes), they are also motivated to avoid dissatisfying experiences (to avoid undesirable outcomes).

As the term is used in the military, "morale" seems to differ from motivation and satisfaction in that it is a much more encompassing construct that includes components of both motivation and satisfaction, as well as group-related notions like cohesiveness. When a soldier is said to have high morale, this suggests that he is strongly motivated to achieve his goals which are in line with the Army's mission, that he is relatively satisfied with his overall situation, and that he feels a strong sense of togetherness with the other members of his unit. There are, of course, other elements included as well, such as a sense of ideological commitment, a positive and adaptive attitude toward adversity, and so on. Further theoretical research in the area of morale might profitably move toward a conceptual tightening of the many informal and loose concepts that military people have traditionally incorporated into that broad construct.

SECTION II: MEASUREMENT

CHAPTER 6

MEASURES OF MOTIVATION

Motivation theories discussed in earlier chapters suggest implications for how to measure motivation. In this chapter, we examine some of these specific implications which stem from expectancy and equity theories. The thrust of this discussion is primarily to explore alternative methods which, according to prevailing theories of motivation, can be used to measure work-related motivation. Then we discuss the wide variety of instruments that actually have been developed or used as measures of motivation or some component of motivation.

Implications of Motivation Theories for Measurement

Before setting out to measure motivation, the investigator needs to define clearly the particular behavior under consideration--to answer the question: motivation to do what? There are many important behaviors that people in the Army can be differentially motivated to perform, such as:

- Working hard on the job
- Volunteering for a mission
- Reenlisting
- Obeying orders.

An obvious strategy for measuring motivation is to ask directly about it. For example, the investigator might ask: "How much effort do you exert on your job?" or "How hard do you usually work?"

Expectancy and equity theories suggest different strategies for measuring motivation. Generally, the various components of motivation are measured separately and then combined according to the principles set forth by expectancy and equity formulations.

Implications from Expectancy Theories

After specifying the behavior or behaviors of interest, the investigator then determines the salient outcomes. He needs, in effect, to determine the motivation content factors most relevant for the particular behavior under consideration. The content factors or outcomes most relevant for one behavior may not be particularly relevant for another. For instance, the most relevant outcomes for a behavior like "working hard on the job" might include a promotion, a word of praise from the supervisor, a feeling of task accomplishment, and respect from fellow workers. On the other

hand, the most relevant outcomes for a behavior like reenlisting might include a reenlistment bonus and opportunities for travel.

From expectancy theories of motivation, we draw the implication that once the behavior and set of salient outcomes have been defined, the next steps measure the valences of the outcomes and the expectancies of attaining them after performing the focal behavior.

To measure valence of an outcome, the investigator can ask an individual either how desirable it is or how instrumental it is for obtaining other outcomes he values highly. For example, suppose the behavior under consideration is working hard on the job and one of the salient outcomes is promotion to a higher rank. To measure the valence of this outcome directly, the investigator might simply ask, "How desirable to you is a promotion?" or "How much would you like a promotion?"

The valence of promotion is approached indirectly when the investigator measures (a) its instrumentality by asking how it is related to other outcomes such as status, responsibility for others, and a feeling of power; and (b) the valences of the second-level outcomes by asking how desired they are. Then the valence of promotion is computed as the sum of the products of instrumentalities and valences over all the outcomes determined relevant for the first-level outcome, promotion.

To measure expectancies, the investigator must ask in some manner what is a person's subjective probability of attaining each of a set of (first-level) outcomes if he performs the behavior under consideration. For example, the investigator asks something like, "What is the probability that if you work hard you will get a promotion?" He repeats this question for each of the outcomes which, like promotion, are relevant for the behavior, working hard.

For some kinds of behaviors, like working hard on the job, instead of asking directly about the relationship between exerting effort (working hard) and first-level outcomes like a promotion, the investigator might measure separately the two components of this expectancy relationship; namely, the relationship between exerting effort and performing well, or Expectancy I (e.g., "If you work hard, will your job performance be outstanding?"), and the relationship between performing well and receiving a promotion, or Expectancy II (e.g., "If your job performance is outstanding, will you receive a promotion?"). If the two kinds of expectancies are measured separately, the investigator must subsequently combine them, perhaps multiplicatively, as indicated by the Porter and Lawler (1968) model, to derive a measure of outcome expectancy.

Once the valences and expectancies relevant for a particular behavior have been measured, the final index or measure of motivation is computed as the sum of the products of valence times expectancy over all the (first-level) outcomes. For an individual, the greater this index, the more motivated he is to perform the behavior under consideration, according to the general principles of expectancy theories.

Implications from Equity Theories

Equity theories suggest a somewhat different approach to measuring motivation. The investigator measures what a person perceives as his inputs, his outcomes, his referent other's inputs, and his referent other's outcomes. Then, the final index reflects the difference between a person's ratio of inputs to outcomes and his referent other's ratio of inputs to outcomes. The greater this difference, the greater the person's motivation to reduce the resultant feelings of inequity.

The research on pay as an outcome suggests that a measure of perceived inequity based on pay as the only outcome under consideration might perhaps be usefully applied in the Army as a measure of motivation to perform well on the job. As discussed in the theoretical chapters of this report, in the hourly payment situation (like in the Army) the more inequitably underpaid a person feels, the more likely he is to reduce his level of effort and performance to reduce his perceived inputs and minimize feelings of inequity. Thus, a measure of the difference between the ratio of his referent other's job inputs/perceived pay and the ratio of his referent other's job inputs/perceived pay reflects to some degree his motivation to perform well on the job.

Motivation Instruments in Use

The motivation instruments that are actually in use have only rarely been developed from the kinds of theoretical considerations discussed above. Their development is more typically aimed at solving practical needs than measuring a construct of motivation which would fit snugly in a thoughtfully elaborated nomological net. For this reason, there is a wide variety of instruments designed and used as measures of work-related motivation. The literature is replete with measures of both motivational content and motivational process.

Content instruments include measures of:

1. Degree to which things and outcomes in the environment are valued and desired by the individual.

2. Degree to which individuals have needs or motives to attain some kinds of environmental things and outcomes but not others.

3. Degree to which individuals have interests in some kinds of activities or preferences for performing some kinds of behaviors over others.

Most process instruments derive from expectancy theory formulations, usually of the type propounded by Vroom (1964) in his valence-instrumentality-expectancy model. Such instruments measure an individual's valence for specified outcomes and his expectancy of attaining them. They generally yield an index which is often computed as the sum over all

outcomes of valence times expectancy and which represents the strength of the individual's motivation to perform acts he thinks lead to the desirable outcomes.

Besides these content and process instruments, there are several others that are not products of an explicit content or process theoretical orientation but which have been carefully constructed so that they might be useful measures of job-related motivation. They include measures of motivation broadly conceived as job motivation, job involvement, and orientation toward the Protestant Ethic. Also, there are some interesting physiological and behavioral instruments that may have some utility in measuring motivation in formal organizations.

In the remainder of this chapter, we discuss each of these types of motivation instruments in turn. We describe overall strategies used in developing the measures, items and content of some of them, and some empirical findings obtained with the instruments. Also, we attempt to evaluate the constructs being measured, overall strategy of measurement, and where appropriate, specific instruments themselves according to their likely utility in the Army. For these evaluations, we consider the conceptual and theoretical justification for measuring a construct as well as empirical justifications based on such notions as reliability and predictive, concurrent, face, content, and construct validities of instruments purportedly measuring the construct. Hard evaluative data is relatively scanty, however, and in most instances our evaluations must carry the caveat that even a little additional data might alter our judgments.

Measures of Motivation Content

Measures of motivation content can be thought of as measures of outcome valence, whether outcomes are conceptualized as environmental rewards, states of need gratification, or consummatory behaviors. Many such instruments seem to be measures of how much outcomes are desired by people in general; they focus on the differences among outcomes for people in general. Other instruments focus more on how people differ in how much they desire certain outcomes; they measure differences among individuals' needs and desires for certain outcomes.

Measures of Differences Among Outcomes

One type of instrument commonly used to measure motivational content assesses the degree outcomes are positively or negatively valent for people in general. Typically, an individual ranks, rates, or compares a specified set of outcomes according to their relative valences for him personally or according to his opinion about their relative valences for people in general. In any case, the tester usually intends to determine how outcomes differ among themselves, rather than how individuals differ in their valences with respect to each outcome. That is, these instruments usually yield an average valence per outcome instead of a statement of

where one individual stands in comparison to others in an outcome's valence for him. Although the instruments discussed in this section could be used to measure individual differences in valence of outcomes--and they are occasionally used that way--more often they serve as measures of the outcomes themselves, of how positively or negatively valent they are for people in general.

Many instruments of this type were developed to meet a momentary need in a particular industrial or military organization. As a result, there are several instances of instruments used only once to answer a specific question. There is little cumulative evidence, therefore, of their reliabilities and validities.

Since there are a very large number of instruments measuring differences among outcomes, we restrict our attention to those developed in a military context and review instruments used in studies conducted by Githens (1966), Shenk and Wilbourn (1971), Thomas (1970), Bialek and McNeil (1968), and Datel and Legters (1971). There are, of course, many similar instruments developed in civilian organizations. For a representative sample, the reader is urged to see Gadel (1953), Gruenfeld (1962), Jurgenson (1947), Rosen and Weaver (1960), Schwartz, Jenusaitis, and Stark (1966), and Wild (1970).

Githens (1966) asked 644 junior officers commissioned through the NROTC Regular to complete a questionnaire measuring importance of Naval career aspects or outcomes. The officers rated 25 outcomes on a five-point scale from "extremely important" to "not important at all" such as:

- Good pay
- Travel
- Early retirement
- Feelings of accomplishment.

The administrative instructions on the questionnaire make it apparent that it was valence Githens wanted to measure by means of these importance ratings: "For the items in the list below, please circle a letter to indicate how important that item is to you personally as a vocational reward." Respondents also indicated for each outcome how probable it was in the Navy (its "obtainability") and whether the reward outcomes were greater or more attainable in a Navy career as compared to civilian jobs. Githens found that the following outcomes were considered important but not readily obtainable in the Navy:

- Satisfactory home life
- Full use of abilities
- Work under consistent and intelligent personnel policies
- Feelings of accomplishment
- Success through ability alone.

As part of a larger study of relationships between Air Force officers' attitudes and career decisions, Shenk & Wilbourn (1971) analyzed ratings of 23 career outcomes by importance and possibility of attainment in the Air Force, such as:

. Adequate job security
. Have a say in what happens to you
. Obtain a good salary.

Ratings were made by 4,006 junior Air Force officers on a five-point scale from "not important at all" to "extremely important." They found little or no relationship between importance of a reward and its perceived attainability.

The same importance-possibility scale was administered by Thomas (1970) to scientists and engineers in the Air Force. Respondents also rated their intention of making the Air Force a career on a five-point scale from "definitely do not intend to make the Air Force a career" to "definitely plan to make the Air Force a career." Of the 23 career outcomes, importance ratings on four were correlated at $p<.01$ with career intent. Possibility ratings on ten of the same outcomes were also correlated with career intent. Table 1 shows the correlations between the importance and possibility ratings for each outcome and career intent. Thomas concludes that importance (valence) ratings of these general outcomes are less predictive of career intent than possibility ratings.

In another part of the questionnaire, respondents made similar importance-possibility ratings on a set of relatively specific outcomes generated to be particularly relevant for Air Force scientists and engineers. Table 2 shows the correlations between ratings on the specific outcomes and rated career intent. Note that the correlations between importance or valence of these specific outcomes and career intent are considerably higher than between importance of the general outcomes and career intent. In particular, valence of two of the outcomes seemed very highly related to career intent:

. Achieve success as an Air Force officer: $r=.56$, $n=499$, $p<.01$.

. Work under colleague supervision (as opposed to authority supervision): $r=.42$, $n=499$, $p<.01$.

These results suggest that valence of specific outcomes predicts career intent better than valence of general outcomes.

Table 1

Correlations Between Career Inte and Ratings of the Importance and Possibility of Attaining General Job Rewards or Conditions

Job Reward or Condition	Correlation with Career Intent	
	Importance	Possibility
Adequate job security	.14*	-.11
Work under consistent and intelligent personnel policies	.02	.10
Have a say in what happens to you	-.14	.28**
Feel that you are accomplishing something	.06	.23**
Do a great deal of traveling	-.04	-.07
Become proficient in specialized type of work	-.05	.21**
Be in a competitive situation	.00	.25**
Obtain a good salary	.02	.22**
Have a definite work schedule	-.01	.02
Settle down in a certain area	-.26**	.06
Be promoted on the basis of ability	.06	.16**
Spend a lot of time with my family	-.01	-.02
Advance at a fairly rapid rate	.02	.02
Be able to retire at an early age	.22**	.00
Have competent supervisors	.09	.24**
Make a lot of money	-.02	.01
Be given recognition for work well done	.10	.11
Continue flying[a]	..	..
Do work which my wife and family can be proud of	.15**	.21**
Have prestige or social status	.18**	.05
Keep very busy	.13*	.25**
Frequent change of duties	.00	.09
Interesting and challenging work	-.02	.38**

[a]Omitted due to excessive blanks.
*Significant at .05 level.
**Significant at .01 level.

Note: Reprinted from J. M. Thomas, Retention of scientists and engineers in the Air Force. Report No. AFHRL-TR-70-20. Personnel Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, Lackland Air Force Base, Texas, 1970.

Table 2

Correlations Between Career Intent and Ratings of Importance and Possibility of Attaining Specific Job Rewards or Conditions

Job Reward or Condition	Correlation with Career Intent	
	Importance	Possibility
Achieve success as a Scientist/Engineer	-.12*	.18**
Have freedom to formulate my own research ideas	-.15**	.18**
Conduct longitudinal or long-term research	-.07	.07
Do research/engineering work only	-.13*	.08
Become a manager of other Scientists/Engineers	.19**	.15*
Do college teaching	-.05	.04
Publish research in journals of my profession	-.18**	.20**
Do predominantly pure or basic research	-.17**	.02
Have funds readily available for my research	-.09	.00
Work with recognized and highly qualified associates	.00	.20**
Have freedom from organizational deadlines	-.07	-.06
See the results of my work applied in practical situations	.14*	.18**
Move up in my field without becoming a manager	-.14*	.06
Maintain the strict research and work standards of my profession	-.08	.20**
Obtain more formal education	-.09	.09
Solve concrete, practical problems faced by my organization	.21**	.24**
Work under colleague supervision (as opposed to rank authority supervision)	-.42**	.01
Be in a position to evaluate the work of other Scientists/Engineers	.12	.22**
Have access to complete reference material sources	-.02	.17**
Achieve success as an Air Force Officer	.56**	.12*
Manage large-scale projects and contracts	.27**	-.05
Do predominantly field or applied research	.12*	.00
Make a contribution to the advancement of knowledge in my profession	-.05	.21**
Have adequate facilities available	-.02	.06
Receive technical guidance from associates and supervisor	-.12*	.31**
Make a significant contribution to the mission of the Air Force as a Scientist/Engineer	.25**	.16**

*Significant at .05 level.
**Significant at .01 level.

Note: Reprinted from J. M. Thomas, Retention of scientists and engineers in the Air Force. Report No. AFHRL-TR-70-20. Personnel Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, Lackland Air Force Base, Texas, 1970.

To assess natural reinforcers in Army Basic Combat Training which might be used as incentives to motivate soldiers toward improved performance and proficiency, Bialek & McNeil (1968) had 62 trainees at Fort Ord sort 43 outcomes that might occur during BCT into seven categories from "most attractive" to "least attractive." Trainees were instructed to sort outcomes according to what they thought most trainees would find most and least attractive. Two weeks later, another group of trainees re-sorted the same list of outcomes for the purpose of estimating item reliability.

The investigators found that 19 of the 43 outcomes met their a priori standards of reliability and low variability. Their criteria for selecting these 19 items were that:

1. Item median could not differ between administrations by more than .5 of a scale point.

2. Variability of items (interquartile range or Q scores) between administrations could not differ by more than 1.0 point.

3. Given conditions 1 and 2, items could not have an absolute (two administrations combined) Q score greater than 2.6 (Bialek & McNeil, 1968, p. 4).

By these criteria, the three most attractive outcomes were:

- Special promotion in rank (E-2)
- Choice of future assignment
- Three extra leave days.

The three least attractive outcomes were:

- PT demonstrator for one week
- One month's supply of shoe polish
- One month's supply of Brasso.

It does seem possible, therefore, to generate a list of fairly specific outcomes which vary reliably among themselves in valence and for which people agree on how positively or negatively valent they are. The Bialek and McNeil study also shows, however, that outcomes differ according to how reliably they are evaluated and how much people agree on the extent to which they are positively or negatively valent. Therefore, it would be prudent for other investigators who hope to measure valence of outcomes to demonstrate the reliability and inter-rater agreement for their measures.

Datel & Legters (1971) extended the Bialek and McNeil study by having 500 judges trained in Army Basic Combat Training, Advanced Infantry Training, and Combat Support Training rate how much they thought trainees liked each of about 200 outcomes that might occur during training. The seven-point rating scale was anchored at each point by a lengthy statement of degree of affect which ranged from a maximum of: "Trainees like this very much; trainees would like to see this take place more frequently; trainees would

work harder if this happened oftener," to a minimum of: "Trainees dislike this very much; trainees would not like to see this take place at all; trainees would try hard to avoid this." Some examples are:

- Having eight hours of sleep a night
- Listening to a radio
- Being told that he's done a good job
- Having good chow.

Datel and Legters found that trainees were very consistent in their responses. Outcomes with similar content received similar ratings, outcomes oppositely worded were rated at opposite ends of the scale, and the trainees in the three different groups agreed highly on ratings for the outcomes.

We turn now to instruments measuring importance of outcomes for something. In such instruments, the respondent is asked to rate, rank, or compare outcomes according to their importance for his satisfaction, dissatisfaction, effort, or enlistment decision (into the military). These instructions sometimes make it unclear whether the instrument is tapping valence, salience, or instrumentality of the outcomes. We include such instruments in this discussion of valence measures anyway, because some of them do seem to be tapping valence. Keep in mind that some probably are measuring valence of outcomes, but some may not be, and then it is difficult to specify exactly what constructs they are measuring that are relevant for motivation, job satisfaction, or morale.

Friedlander (1963, 1964, 1965a, 1965b, 1966) conducted a series of studies of job satisfaction in which he used an instrument which typically has the respondent rate the degree of satisfaction for each of a set of job characteristics or outcomes and then the degree to which each outcome was important in contributing to feelings of satisfaction or dissatisfaction. For example, with a sample of 1,468 white and blue collar civil service employees, Friedlander (1965a) had respondents rate the following 14 job characteristics on "how important each of these things is to your feeling of satisfaction or dissatisfaction":

- Performing challenging assignments on my job
- Receiving recognition for a job well done
- Work requiring the use of my best abilities
- A feeling of achievement in the work I am doing
- The working relationship I have with my supervisor
- Opportunity for promotion on my job
- Management policies which affect the feelings of the employees
- Working with a supervisor who really knows his job
- A feeling of security in my job
- Opportunity for freedom on my job
- The working relationship I have with my co-workers
- Amount of responsibility I have on my job
- A smooth and efficient work group
- Training and experience on the job that will help my growth.

The ratings were made on a five-point scale from "of extreme importance to me" to "of no importance to me." White-collar employees rated outcomes reflecting self-actualization and social environment as most important, whereas blue-collar workers rated interpersonal comfort and security more important.

Wernimont, Toren, & Kopell (1970) developed an instrument that requires respondents to rate a list of 17 outcomes twice; once according to their importance in "making you want to put extra effort into doing your job" and again according to their importance in contributing to greater personal satisfaction on the job. Outcomes rated by 944 technical employees of a business organization as most important for extra effort were:

- Doing the kind of work that one likes to do
- Being responsible (and accountable) for all or nearly all aspects of one's job assignments
- Having the opportunity to take part in making decisions which affect one's work.

The most important outcomes rated as contributing to satisfaction were:

- Having accomplished a lot according to one's own standards
- Doing the kind of work that one likes to do.

Several investigators in the military have conducted surveys about attitudes and motivations related to decisions to enlist, reenlist, or make a career out of the military. We review some of these studies to illustrate the kinds of instruments typically used by these researchers to measure importance of various classes of job and career outcomes in impacting these decisions.

As part of a survey questionnaire administered to 1,415 Naval Fire Control Technicians, Sharp & Katz (1969) included a list of 27 career outcomes with instructions that respondents rate each of them on a three-point scale (of considerable importance, of some importance, of no importance) according to "the extent of its importance to you in reaching a decision on whether or not to make a career of the Navy." The three outcomes rated overall as most important were:

- Freedom of personal life
- Chance to do the kind of work you like
- Your job and duty assignments.

The three outcomes rated least important were:

- Travel, adventure, new experiences
- Amount of social activities
- Retirement and survivors' benefits.

Mullins, Massey, & Riederich (1968) administered a questionnaire to 449 basic airmen (Air Force), part of which was a list of 15 statements. Respondents were to "select the two which were most important in your decision to join the Air Force instead of some other branch of the service." The most frequently endorsed statements were:

. I felt I could learn more in the Air Force (30.3% endorsed)
. The Air Force offers a wider choice of assignments (11.0%).
. If I have to fight, I'd rather not do it as a foot soldier (8.9%).

Deimel & Blakelock (1969) analyzed questionnaire data collected from 2,926 men applying for enlistment at Navy Recruiting Stations to learn about the relative impact of personal contacts, personal reasons, and Navy events on decisions to enlist in the Navy. The category of reasons in the questionnaire called "personal reasons" included things like:

. Desire for a Navy career
. Needed a job
. To become more mature and self-reliant.

The applicants indicated the influence of each item on a six-point scale from "negative influence" to "strong positive influence," which included rating categories for "did not think about" and "don't know." The most frequently endorsed reasons were:

. Opportunity to get technical training (85% endorsed)
. Desire to travel (81%)
. Desire to serve country (70%).

There are clearly many strategies of measuring valence or importance of outcomes, and many instruments deriving from each strategy. Most of these require respondents to make direct self-report estimates of the relative valence or importance of job factors or outcomes. Opsahl & Dunnette (1966) discuss three possible reasons why such self-reports of importance might not yield trustworthy data: (1) people may be reluctant to report that pay, for instance, is very important to them, because they might feel that it is more socially desirable to claim money is relatively unimportant in comparison to more "acceptable" factors like job autonomy or intrinsic job satisfaction; (2) the reinforcement contingencies for actually obtaining money are different from those for simply saying one is motivated to attain money; and (3) some people are poor judges of what it is about their jobs that attracts and holds them.

Nealey (1972) reviews other shortcomings of direct measures of the importance of job factors and summarizes his arguments by listing these methodological requirements for good measures of importance:

. Work factors, characteristics, or outcomes to be evaluated should be specific and quantified.
. Respondents should be judging importance of outcomes in the specific context of their work organization instead of from the point of view of a "general life set."

. Focus or referent for the importance judgments should be defined. Judgments should be made on importance for something.

. Self-report techniques are less methodologically adequate than techniques relying on simple verbal response or behavior observation. For example, judgments of "preference" between two outcomes are simpler and more sound methodologically than judgments of "degree of importance" for each outcome.

. Judgments should be free from biases of social desirability or motivation to fake or distort responses.

. Method should allow the assessment of a reliability estimate.

. Method should be appropriate for both tangible and intangible outcomes.

With such methodological considerations in mind Nealey (1970) developed what he calls a "two-phase" method of measuring the importance of job factors aboard a Navy destroyer. Three groups of Navy enlisted men, thirty men per group, made paired comparison judgments first among types of work, then among supervisors, and finally among sets of co-workers. Thus, each group of men made preferences among pairs of outcomes in three lists of paired comparisons. The first group made these judgments from the standpoint of the perceived influence on reenlistment. They were to "choose among job assignments (or supervisors or groups of co-workers) on the basis of the effect they might have on your decision to re-enlist (p. 61)." The second group made judgments from the standpoint of perceived influence on productivity, and the third, perceived influence on job satisfaction. To illustrate the type of items in these paired comparisons, we list below some pairs of jobs. Respondents in the first group were instructed: "For each pair, check the job for which you would be more likely to reenlist if you knew that you would have that job (p. 62)."

_____Boatswain's Mate	_____Boilerman
_____Machinist's Mate	_____Boatswain's Mate
_____Machinist's Mate	_____Boilerman

In this way seven jobs were paired with each other in all combinations.

Then for phase II of his measurement strategy, Nealey had three other groups of enlisted men on the same destroyer make preference judgments among pairs of combinations of:

. Pay and supervisors
. Pay and types of work
. Pay and co-workers
. Supervisors and co-workers
. Types of work and co-workers
. Supervisors and types of work.

That is, Nealey determined from analysis of phase I data which types of work, which supervisors, and which sets of co-workers were ranked first, fourth, and seventh and then developed the six scales listed above by combining the top ranked type of work, for instance, with middle and bottom ranked supervisors; the middle ranked type or work with top and bottom ranked supervisors; and the bottom ranked type of work with top and middle ranked supervisors. For the "pay" items, he used three levels arbitrarily chosen to be equivalent to a 20 percent raise, 10 percent raise, and present pay level, assuming the 20 percent raise would have been ranked higher than the 10 percent raise which in turn would have been ranked higher than present pay level. At this point, therefore, Nealey had six lists of combinations of pay, types of work, supervisors and co-workers, with six combined stimuli per list. From these lists, he constructed six scales for paired comparison evaluations by pairing each combined stimulus in a list with all other combined stimuli in the same list. An example of some of the 15 comparisons made using combinations of job assignments and supervisors appears below with introductory instructions:

> On the page below, combinations of job assignments and supervisors are listed side by side in pairs. For each pair, check the combination for which you would be more likely to reenlist if you knew that you would have that combination (p. 64).

Boilerman _____Jones	Electronics Technician _____Jones
Gunner's Mate _____Brown	Gunner's Mate _____Smith
Electronics Technician _____Brown	Boilerman _____Jones

In sum, Nealey's two-phase strategy is a method of measuring preferences for different types of work, supervisors, and sets of co-workers considered singly and then for combinations of pay levels, types of work, supervisors, and sets of co-workers considered in pairs. These preferences are made by different respondents from the standpoints of influence on reenlistment, productivity, and job satisfaction.

Next, Nealey computed multiple regressions to predict preferences among the combined job factors in phase II from the preference rankings of their individual constituents obtained in phase I. The beta weights in these regression equations constitute Nealey's indices of "importance." Thus, if "supervisors" had a high beta weight in multiple regression equations for predicting preferences among combinations of supervisors plus type of work, supervisors plus pay, and supervisors plus sets of co-workers when all these preferences are made from the standpoint of influence on reenlistment, then supervisors would be considered an "important" job factor for reenlistment.

Nealey (1970) found that type of work and pay were highly important in determining reenlistment, production, and job satisfaction, while co-workers and supervisors were less important. To estimate reliability, Nealey counted the number of "circular triads" (cases where A>B, B>C, but C>A) in his ordinal scales and concluded there were few enough to warrant the declaration that his scales of importance were highly transitive and possessed at least ordinal scale properties.

In another study, Nealey (1972) measured the relative importance of these same job factors on four destroyers by two methods: a two-phase indirect method similar to the one described above and a direct method in which the job aspects were simply rated on 11-point scales of importance. He compared results obtained by these two measurement strategies and found that with the direct rating method, pay was the most important factor on all four ships, but with the indirect two-phase method, the relative importance of the factors varied from ship to ship. Nealey concludes from this that the direct method is less sensitive to specific situational influences.

Measures of Differences Among Individuals in Their Desires, Needs, and Interests

The valence measures we discussed in the previous section are not frequently used as measures of individual differences--they are more often used to measure the differences in valence among outcomes, rather than the differences among individuals in valence for a particular outcome. Although they could be used to differentiate people, they more typically are scored such that individuals' responses for each outcome are averaged and average scores thus obtained are compared to each other. This type of information lets us say things like "outcome A is more valued in general than outcome B," rather than "Jones values outcome A more than Smith does."

Instruments considered in this section are measures of individual differences. They measure characteristics of people, rather than characteristics of outcomes. They measure what an individual desires, what he likes to do, and how much he desires and likes these things in comparison to other people. They measure, in effect, the desires, needs, and interests of individuals.

There are a number of ways that we can infer individuals' desires, needs, and interests. We can use valence instruments of the type described in the previous section to measure what outcomes are relatively more and less valued by one person in comparison to other people and infer that the kinds of outcomes highly valued constitute his desires or needs. We can group these outcomes into categories like intrinsic and extrinsic and infer from the kinds of outcomes a person values the level of his intrinsic and extrinsic needs relative to other people. Another approach is to have a person describe himself according to adjectives or statements such as are found in typical objective "personality" questionnaires and infer from his self-reported description the type and level of his needs. For instance, if someone endorses adjectives like aggressive, dominant, and ambitious but not timid, passive, or apathetic, we might infer that he has a higher

need for power than another individual who endorsed the latter three adjectives but not the former three. A projective personality measure could also be used to infer need. Perhaps when the kinds of stories a person tells in response to an ambiguous picture all deal with striving to excel and meeting high standards and goals, we might infer he has a high need for achievement. Also, statements about an individual's preferred activities may be used to infer his interests. For example, if an individual reports that he enjoys finding out how things work, dealing with numbers, and reading the biographies of eminent scientists, we might infer that he has an interest in science.

How Important Questionnaire. As part of his doctoral dissertation, Carlson (1970) sought "to examine the empirical meaning of individual differences reflected in the exploratory measure of preferences for various job characteristics and job circumstances (p. 29)." To this end, he developed the "How Important" questionnaire, an instrument containing statements which described 196 job characteristics and circumstances. The statements were chosen to represent a wide variety of "activities, types of people, interaction possibilities, work group characteristics, physical and qualitative aspects of the job environment, modes of behaving on the job, etc. (p. 38)." Some are:

. Having pleasant work surroundings
. Having a secure job and income
. Working for a company where people are treated as individuals
. Having a job title that one can be proud of
. Working with people who readily share helpful tips about their jobs.

While asking themselves the question "How important is this job characteristic to me?", respondents were to rate each statement on a seven-point scale from "critically important" to "of little or no importance." The anchors were carefully defined; for instance, "critically important" was defined as "I feel this job characteristic would contribute something that is essential and that I cannot do without in the best possible job for me," while "of little or no importance" was defined as "I feel this job characteristic would contribute little or nothing at all to the best possible job for me." Two hundred and thirteen hourly-paid precision assembly men working in the manufacturing department of a moderately large electronics firm completed the questionnaire.

Factor analysis of their responses to the "How Important" questionnaire yielded three general, two sub-general, and 14 group factors. The three general factors are listed below with their two highest loading items:

Factor 1. Support: dependence on physical and social environment.
. Working with people who are friendly and helpful
. Doing a type of work which makes it possible for one to work together cooperatively with other people.

Factor 2. Advantage in environmental returns.
. Having a job where one can make more money than in one's previous job
. Having pay as the major source of satisfaction with one's job.

Factor 3. Competence: mastery of job and environment.
. Being on a job that provides responsibility and pride in one's workmanship
. Being in a position to help meet departmental objectives.

Considering these factors as "scales," Carlson computed estimates of internal consistency reliability, which were in the 90's for the three general factors. They appear, therefore, to be three reliable scales of general needs.

Job Attitude Scale. The Job Attitude Scale (Saleh, 1971a) is a questionnaire consisting of 16 job-related statements, six representing the intrinsic outcomes of achievement, recognition, nature of job, responsibility, advancement, and possibility of growth, and ten representing the extrinsic factors of salary, interpersonal relations (supervision), interpersonal relations (subordinates), interpersonal relations (peers), technical-supervision, company policy and administration, working conditions, factors in personal life, status, and security. Each statement is paired with all the others for a total of 120 items. For each pair of statements, respondents are instructed to "indicate in each of the following items which of the two factors will be more satisfying to you as you perform your job." Examples of the pairs of statements follow:

(a) Seeing results of work
(b) Performing creative work

(a) Having a secure job
(b) Receiving a salary increase

(a) Receiving more responsibility
(b) Receiving advancement.

The questionnaire is scored by assigning one point whenever an item representing an intrinsic factor is chosen over a comparison extrinsic item. Besides this "general intrinsic score," the instrument yields a separate score for each of the 16 job factors. A short form of the JAS is available in which each of the six intrinsic items are paired with each of the ten extrinsic items for a total of sixty paired comparisons. This short form yields only a "general intrinsic score." Mean intrinsic scores on the short form were compared to mean intrinsic scores on the long form obtained from two groups of employees (n=32; n=22) of an appliance and sheet-metal manufacturer (both groups took both forms in a counterbalanced order 2 weeks apart). The means were not significantly different, indicating that the short-form might be an adequate substitute if only the general intrinsic score is required.

In a sample of 85 male managers aged 60 to 65, employed by 12 Cleveland companies, Saleh (1964) found the split-half reliability of the intrinsic scale to be .94. Then, with a sample of 25 employees of a company manufacturing appliances and sheet-metal products, Saleh (1971b) found the test-retest reliability (2 weeks between testings) to be .88.

Saleh (1971a) administered the JAS and the California Psychological Inventory (CPI) to 68 male public school teachers. Table 3 shows the correlations obtained between the CPI scales and the general intrinsic score from the JAS.

An examination of the significant correlations of the JAS with the CPI scales, dominance, sociability, social presence, sense of well-being, tolerance, achievement via conformance, and intellectual efficiency suggests that the person with a high general intrinsic score might be described thus: more poised, ascendent, and self-assured in social situations than low intrinsic scorers; more permissive, accepting, and non-judgmental of social beliefs and attitude; more clear thinking, resourceful, well-informed, and oriented toward achievement in situations requiring conformity to structure than low intrinsic scorers. Saleh also reports that college students score higher than high school students and that upper and middle managers score higher than supervisors or correction officers. In sum, Saleh's JAS appears to be both a reliable (internal consistency and test-retest) and to some extent valid (by the tenets of construct validity) measure of intrinsic need.

Work Components Study. Based largely on the theoretical formulations of Herzberg, Mausner, & Snyderman (1959), Borgatta (1967) and Borgatta, Ford, & Bohrnstedt (1968) developed the Work Components Study (WCS), a self-report questionnaire which, in its revised form has 64 items distributed among the seven scales listed below (Ford, Borgatta, & Bohrnstedt, 1969):

. Potential for personal challenge and development. Items in this scale appear to reflect the person's desire to do creative work, exercise responsibility, and be in situations emphasizing originality and ability.

. Responses to new demands. These items describe the person's responsiveness to emergencies and changing job situations.

. Competitiveness desirability (and reward of success). Items here reflect the person's tendency to seek situations characterized by competition, emphasis on accomplishment, and the determination of salary by merit.

. Tolerance for work pressure. Items in this scale reflect attitudes toward heavy work loads which may require performance above and beyond the call of duty.

. Conservative security. These items were intended to measure the person's tendency to seek security and play it safe.

Table 3

Correlations Between the General Intrinsic Score of the JAS and CPI Scales

	Males N=68
Dominance	,25*
Capacity for Status	.22
Sociability	.30*
Social Presence	.32**
Self-acceptance	-.02
Sense of well-being	.31*
Responsibility	.15
Socialization	-.05
Self-control	-.12
Tolerance	.39**
Good Impression	.22
Communality	.07
Achievement via Conformance	.24*
Achievement via Independence	.22
Intellectual Efficiency	.46**
Psychological-mindedness	.20
Flexibility	.21
Femininity	-.01

*p<.05; **p<.01

Note: Adapted from S. D. Saleh, Development of the Job Attitude Scale (JAS). Mimeo, Department of Management Sciences, University of Waterloo, Waterloo, Ontario, 1971a.

. Willingness to seek reward in spite of uncertainty versus avoidance of uncertainty. These items ask such questions as "Is the person willing to do interesting work even though he might get fired easily?"

. Surround concern. This scale seems to measure degree of concern for such "hygiene" factors as lighting, ventilation, co-workers, supervisors, and the community at large.

The items in all these scales describe job situations which vary according to their relative attractiveness for different individuals. The administrative instructions for completing the WCS ask respondents to indicate how desirable they would consider a job in which the situational job factors described in the 64 items were prominent. In essence, by asking respondents to indicate the relative desirability of various specific job situations or outcomes, the WCS yields a measure of the individual's desire or need for the seven classes of situations described by the scales.

Ford, Borgatta, & Bohrnstedt (1969) administered the WCS to 869 male and 344 female college-level personnel hired during 1964 by Bell Telephone. Internal consistency reliabilities (Cronbach's alphas) for the scales and interscale correlations are displayed in Table 4. Note that scale reliabilities are moderately high, ranging from .66 to .83. Since several of the interscale correlations are in the .40's and .50's, there may be some doubt they are each measuring different or independent constructs.

In comparing employees with those terminated by the company and with those who quit the company, Ford et al. found few differences in WCS scores. There is some indication of predictive validity for the WCS, however, in that the individuals scoring high on the competitive desirability scale were rated by the company as most quickly moving toward the third level of management. The correlation between WCS Competitive Desirability and estimates of number of years to reach the third level of management was -.24 (N-390, $p<.05$).

Minnesota Importance Questionnaire. The original version of the Minnesota Importance Questionnaire (MIQ) (Weiss, Dawis, England, & Lofquist, 1964a) was a one hundred item instrument which measured twenty vocational needs on a rating format with alternatives ranging from "very important" to "very unimportant." Vocational needs were defined as "the individual's preference for different types of reinforcers in the environment, i.e., preferences for those stimulus conditions in the environment which he perceives as important to the maintenance of his behavior in the work environment (Weiss, Dawis, Lofquist, & England, 1966, p. 11)." Although this instrument had high internal consistency reliabilities (Weiss et al., 1964) and perhaps some degree of construct validity (Weiss, Dawis, England, & Lofquist, 1964b),

Table 4

Reliabilities and Intercorrelations of WCS Scores

		1	2	3	4	5	6	7
1.	Potential for personal challenge and development	.67 / .77	.39	.41	.24	-.10	.13	.21
2.	Responsiveness to new demands	.54	.66 / .67	.52	.62	-.17	.32	.07
3.	Competitiveness desirability (and reward of success)	.50	.49	.70 / .71	.54	-.24	.43	-.01
4.	Tolerance for work pressure	.35	.55	.52	.79 / .74	-.15	.35	-.06
5.	Conservative security	-.21	-.23	-.11	-.13	.74 / .78	-.30	.27
6.	Willingness to seek reward in spite of uncertainty vs. avoidance of uncertainty	.13	.23	.28	.30	-.18	.81 / .80	-.19
7.	Surround concern	.17	.05	.04	.01	.20	-.18	.83 / .83

Note. Data above the main diagonal are for 869 male college hires; below the main diagonal for 344 female college hires. Cronbach's alphas are in the main diagonal.

Source: R. N. Ford et al. Use of the Work Components Study with college level employees. Journal of Applied Psychology, 1969, 53, 367-376. Copyright (1969) by the American Psychological Association. Reprinted by permission.

it had major psychometric deficiencies--scale intercorrelations were moderately high and there was relatively little variance on the scale scores.

To overcome these deficiencies, the Likert rating format was revised into a pair-comparison format. Each of the one hundred Likert items was first correlated with its total scale score, and the one item most highly correlated with its total scale score was retained for inclusion in the pair-comparison version. In this way, the following twenty items were chosen to represent the twenty scales:

1. Ability utilization: I could do something that makes use of my abilities.

2. Achievement: The job could give me a feeling of accomplishment.

3. Activity: I could be busy all the time.

4. Advancement: The job would provide an opportunity for advancement.

5. Authority: I could tell people what to do.

6. Company policies and practices: The company would administer its policies fairly.

7. Compensation: My pay would compare well with that of other workers.

8. Co-workers: My co-workers would be easy to make friends with.

9. Creativity: I could try out some of my own ideas.

10. Independence: I could work alone on the job.

11. Moral values: I could do the work without feeling that it is morally wrong.

12. Recognition: I could get recognition from the work I do.

13. Responsibility: I could make decisions on my own.

14. Security: The job would provide for steady employment.

15. Social service: I could do things for other people.

16. Social status: I could be "somebody" in the community.

17. Supervision-human relations: My boss would back up his men (with top management).

18. Supervision-technical: My boss would train his men well.

19. Variety: I could do something different every day.

20. Working conditions: The job would have good working conditions.

Each item is paired with all other items twice. For instance, item A is paired with item B once as the first item in the pair and then again as the second item. There are, accordingly, 380 pair-comparison items. The respondent is instructed to "decide which statement of the pair is more important to you in your ideal job." A scale score is then computed as the number of times that the item representing the scale is preferred over all other items.

Weiss et al. (1966) report reliability and validity data obtained from questionnaires completed by 1,430 individuals in a variety of occupations:

- 240 janitors and maintenance men
- 324 assemblers and machinists
- 226 office clerks
- 202 salesmen
- 384 engineers
- 54 in miscellaneous occupations.

Hoyt internal consistency reliability coefficients (Hoyt, 1941) for the twenty scales range from .94 to .73. The median reliability coefficient was .82 with 18 of the twenty coefficients .76 or larger. These coefficients are large enough to indicate that in general the pair-comparison scales of the MIQ have at least adequate reliability as estimated by an index of internal consistency.

Inter-scale correlations range from .64 to -.36 with a median of -.02. Since the median inter-scale correlation with the Likert rating format was .50, the pair-comparison method does seem to have been successful in improving the MIQ by reducing the degree of inter-scale correlation. An orthogonal factor analysis of the pair-comparison scales using the Kaiser criterion for number of factors to extract (all factors whose eigenvalues are greater than 1.0) yielded three factors which accounted for 29 percent of the total variance. But since approximately 82 percent of the variance is reliable, as indicated by the median reliability coefficient, over 50 percent of MIQ scale variance is reliable and specific. In other words, the scales are reliable and fairly independent.

Comparing relative scores across the occupational groups in their development sample, Weiss et al. (1966) found that:

. Janitors-maintenance men obtained the highest means on Activity, Co-workers and Independence.

. Assemblers-machinists had the highest means on Compensation, Security, Variety, and Working Conditions.

. Office clerks scored highest on Advancement, Supervision-Technical, and Company Policies and Practices.

. Salesmen had the highest means on Social Service and Social Status.

. Engineers obtained the highest means on Ability Utilization, Achievement, Authority, Creativity, Moral Values, Recognition, Responsibility, and Supervision-Human Relations.

The investigators conclude from these findings that extrinsic outcomes seem more important for the two blue-collar groups (janitors-maintenance men and assemblers-machinists) and that intrinsic outcomes are relatively more important for the higher level jobs. Since such occupational differences agree with common expectations about the kinds of rewards sought by those in different occupations, these results lend some construct validity to the pair-comparison MIQ.

Instruments developed by Carlson (1970), Saleh (1971a), Borgatta (1967), and Weiss et al. (1966), can be thought of as measures that infer individual differences in needs or desires from self-reports about the relative valences or importances of outcomes. A second major method of inferring needs is by the use of what are traditionally called "personality tests." These instruments typically attempt to tap underlying need structure through more indirect means. They ask the respondent to describe himself by selectively endorsing appropriate self-descriptive adjectives or statements. Some are projective measures and infer needs from responses to standardized, ambiguous stimuli. And others infer needs or interests from self-reports regarding the kinds of activities an individual enjoys. We cannot in this report review all personality instruments that have at some time or other been used in formal work organizations but discuss a few of them to provide a flavor for what is available.

Self-Description Inventory. Ghiselli (1971) developed the SDI as a measure of abilities, personality traits, and motivational traits (needs) that may be related to effective managerial performance. The SDI consists of 64 pairs of self-descriptive adjectives with the adjectives in each pair matched for social desirability. For 32 pairs, both adjectives are socially desirable and the respondent checks the one in each pair which is most descriptive of him; for the other 32 pairs, both are undesirable and he is instructed to check the one least descriptive of him. Examples of these items follow:

In each of the pairs of words below, check the one you think most describes you.

_____capable	_____friendly	_____realistic
_____discrete	_____cheerful	_____tactful

In each of the pairs of words below, check the one you think least describes you.

_____shy	_____shallow	_____sly
_____lazy	_____stingy	_____excitable

Items were assigned to the five motivation scales in the SDI (need for occupational status or achievement, self-actualization, power, high financial reward, and job security) according to whether they distinguished between one sample of undergraduates who reported they had a high need for the kind of outcome indicated by the scale and another sample reporting a low need.

Ghiselli (1971) reports some validity for the scale, "need for occupational status," by demonstrating that mean scores on this scale vary with occupational level. Table 5 shows that highest scores are obtained by professional and upper management personnel ($\bar{X}$=44.8), lowest by unskilled workers ($\bar{X}$=24.3), and moderate by foremen ($\bar{X}$=33.1).

The scale measuring need for self-actualization correlated .41 with ratings of self-actualization made on the basis of interview information collected from 170 people in management and high sales positions. Similar interview ratings of strength of desire to achieve high financial status correlated .42 with the financial need scale. Thus, some construct validity can be attributed to these scales.

Performance ratings were made by the supervisors or superiors of 306 middle managers, 111 line supervisors, and 238 line workers. Correlations between these ratings and scores on the SDI motivation scales are presented in Table 6. Note that in general need scores correlated more highly with performance of middle managers than with the performance ratings of line supervisors or line workers. The scales, therefore, seem to be concurrently valid for middle managers but not for line supervisors or line workers.

Thematic Apperception Test. The TAT (Murray, 1943) is one of the better known projective personality instruments that attempt to measure individual differences in needs. It consists of twenty ambiguous pictures and requires the respondent to relate stories about the events seen in the pictures. The stories are coded and scored for needs such as need for achievement, affiliation, and power. Although inter-coder reliability for the TAT seems adequate (Atkinson, 1958), other estimates of reliability indicate that the TAT may have psychometric deficiencies. For example, test-retest reliabilities for TAT need achievement scores range from .78 to .26 (Cofer & Appley, 1964, p. 723). Entwisle (1972) reviews several studies and concludes that internal consistency reliabilities for such measures rarely exceed .30 to .40. The TAT has had only very limited use in formal work organizations and very little, if any, evidence is available to indicate that it is a valid measure of work-related needs.

Table 5

Scores on the Need for Occupational Status Scale of the SDI According to Occupational Level

	Number	Standard Deviation	Mean Score
Professional personnel	57	24.8	44.8
Upper managers	113	13.5	44.8
Middle managers	177	18.1	40.9
Clerical workers	102	17.8	33.5
Foremen	157	22.5	33.1
Skilled workers	64	18.5	30.0
Semiskilled workers	69	18.4	27.1
Unskilled workers	34	18.2	24.3

Note: Adapted from E. E. Ghiselli. Explorations in managerial talent. Pacific Palisades, Calif.: Goodyear Publishing Company, copyright 1971, p. 135.

Table 6

Correlations Between Performance Ratings and SDI Need Scale Scores for Three Occupational Levels

	Middle Managers	Line Supervisors	Line Workers
	N=306	N=111	N=238
Occupational status	.34**	.09	.02
Self-actualization	.26**	-.03	.05
Power	.03	.13	-.16*
Financial reward	-.18*	-.05	-.10
Security	-.30**	-.05	-.11

*p<.05; **p<.01

Source: Adapted from E. E. Ghiselli. Explorations in managerial talent. Pacific Palisades, Calif.: Goodyear Publishing Company, copyright 1971, p. 162.

Note: Correlation coefficients reported in this table were extrapolated from a line graph in Ghiselli (1971) and consequently may be inaccurate at the second decimal place.

Strong Vocational Interest Blank. The SVIB measures interests common among people within an occupation but different from those held by people in other occupations usually entered by college students (Campbell, 1966, 1971). The men's form consists of 399 items of varying formats. The respondent rates, ranks, or makes paired comparisons between a number of occupations, school subjects, amusements, activities, and types of people in terms of his liking or degree of interest in them. He also rates several self-descriptive words and phrases according to how characteristic they are of him. Some examples of items appear below:

> For each occupation (school subject, amusement, etc.) listed below, indicate whether you would like that kind of work or not.
>
> | | | |
> |---|---|---|
> | ____actor | ____algebra | ____golf |
> | ____military man | ____chemistry | ____going to church |
> | ____psychologist | ____philosophy | ____poetry |

Although male and female forms of the SVIB are presently separate, with different sets of items and scales, they are soon to be combined into one form. However, different norms will likely be used for scoring purposes (Campbell, 1974).

Among the occupational groups presently keyed on the SVIB are Dentist, Biologist, Engineer, Army Officer, Air Force Officer, Farmer, Minister, and Life Insurance Salesman. We describe the Army Officer scale to illustrate the development of scales on the SVIB. A developmental sample of 463 Army officers completed the SVIB. They were all West Point graduates, had an average of 18 years' experience with the military, and had all been rated above average on Army Officer Efficiency ratings. They were mostly majors, lieutenant colonels, or colonels. Their responses to the individual items in the SVIB were compared to those of a large sample of "men in general," men who were in a wide variety of occupations. An item was included for the Army Officer scale if the percentage of officers in the developmental sample who endorsed it was different from the percentage of "men in general" who endorsed it. Thus, items that were endorsed more frequently by Army officers included architect, civil engineer, judge, and auto racer; items that were endorsed less frequently by officers included art galleries, sociology, bird watching, and physiology. Both kinds of items--those endorsed more frequently and those endorsed less frequently by Army officers--were included in the final scale, as long as the difference in endorsement (difference between endorsement by Army officers and men in general) was large enough.

A considerable amount of research testifies to the reliability and validity of the SVIB. For instance, Tyler (1965) cites studies showing that even with an interval of 22 years between testings, the median test-retest reliability of scale scores for 228 people who were college seniors when first tested was .76. Thus, interests as measured by the SVIB are remarkably stable. And validation studies, focused largely on supporting the following kinds of propositions, have also obtained impressive success (Tyler, 1965, p. 193; after Strong, 1943, p. 388):

. Men continuing in occupation A obtain a higher interest score in A than in any other occupation.

. Men continuing in occupation A obtain a higher interest score in it than do men entering other occupations.

. Men continuing in occupation A obtain higher scores in A than do men who change from A to another occupation.

. Men changing from occupation A to occupation B score higher in B prior to the change than in any other occupation, including A.

In sum, the SVIB appears to be a reliable (test-retest) measure of the similarity of a person's interests to those of individuals in various occupational groups. Since it predicts fairly well whether a person is likely to stay in a given occupation, it is invested with some degree of validity as a measure of motivation to persist in an occupation.

Abrahams, Neumann, & Githens (1968a, 1968b; Githens, Abrahams, & Neumann, 1968) report the development and validation of an SVIB scale for selecting NROTC applicants most likely to remain on active duty beyond the minimum obligated period. They administered the SVIB to all officers from NROTC graduating classes of 1956 through 1961 still on active duty. In 1965, item responses of officers who left immediately upon termination of the obligated period were compared to responses of those who voluntarily remained on active duty. These two groups differed by at least 10 percent in their endorsements of 156 SVIB items, which were consequently selected to form the "retention scale." The point biserial correlation between scores on the retention scale and membership in either the "retentee" or "nonretentee" group was .58 ($N=722$, $p<.01$) for the developmental sample. In two cross-validation samples, the correlation shrunk to .24 ($N=599$, p .01) and .30 ($N=412$, $p<.01$). The long-range stability of a slightly shorter version of this scale was estimated by correlating test and retest scores for a group of 152 high school students who took the SVIB again ten years later and for another group of 171 college-bound high school seniors who took the test again eight years later. Test-retest reliabilities for the retention scale were .57 in the ten-year group and .65 in the eight-year group. The scale appears, therefore, to be a reliable and to some extent valid measure of interests related to the likelihood that a NROTC commissioned officer will remain on active duty beyond his obligated period.

The Navy has also used SVIB items to develop a scale for identifying midshipmen most likely to disenroll voluntarily from the Naval Academy during "plebe summer," a nonacademic military training program (Abrahams, Neumann, & Dann, 1969). The SVIB was administered to entering classes of 1971 and 1972 at the Naval Academy. For the class of 1972, SVIB item responses of 108 "motivational disenrollees" (people who voluntarily drop out of the program for motivational reasons) were compared to item responses of the remaining 1,226 midshipmen. The two groups differed by 10 percent or more in their responses to 75 SVIB items, which were chosen to constitute the "Naval Academy Summer Disenrollment Scale." The biserial correlation

of this scale for the developmental groups was .62 (N=1334, p<.01). On cross-validation with members of the 1971 Naval Academy class, the correlation was reduced to .36 (N=1163, p<.01). The scale is sufficiently predictive of disenrollment that if used to select Naval Academy applicants, the number of disenrollments could be reduced approximately by half.

Expectancy-Valence Measures of Motivation Process

The general strategy in constructing an expectancy-valence instrument is to generate a list of outcomes, have respondents indicate for each outcome its valence and perceived expectancy of attainment, and then compute a "motivation index" for each respondent as the sum across all outcomes of valence times expectancy. It is this procedure of summing the products of valence and expectancy that lies at the heart of expectancy-valence process measurement, since according to expectancy theory, effort and performance depend on the product of the two variables and either one by itself can provide only an incomplete picture of an individual's level of motivation to perform. We make this point to show why instruments discussed in the motivational content sections of this report are not process measures even though some do measure both valence and expectancy of outcomes. Recall that the instrument that Thomas (1970) used, for example, required that respondents rate both "importance" (valence) and "possibility" (expectancy) for each outcome in the list. But he did not combine these two variables; he only related each one individually to the criterion, intention to re-enlist. Thus, though his instrument seemed to have the raw ingredients for an expectancy process measure, Thomas and others who have used similar instruments did not sum the products of valence and expectancy, and consequently their instruments, or rather their use of their instruments, falls short of the requirements for an expectancy process measure.

We hope to provide a flavor for the general strategy of this type of motivation measure by describing in some detail two instruments constructed by Hackman & Porter (1968) and Mitchel & Albright (1972).

Hackman & Porter (1968) interviewed 24 women employed by a telephone company as "service representatives," a job involving both customer contact and clerical activities, to generate a list of outcomes or consequences of working hard. Fourteen outcomes were mentioned by at least three interviewees and were included in the expectancy questionnaire. Examples are: (1) time will seem to go faster; (2) she is more likely to receive thanks and gratitude from the customers; (3) she is likely to receive promotion(s) more quickly. Since there were few outcomes reflecting negative consequences, Hackman and Porter added four additional outcomes with a moderately negative tone.

A two-part questionnaire was constructed to measure expectancies and valences for the 18 outcomes. First, the respondent was to indicate on a seven-point rating scale with alternatives from "not at all true" to "very true" how much she agreed that each outcome was in fact a consequence of working hard. This set of ratings constituted the expectancy part of the

measure. Valence measures were obtained in the second half of the questionnaire where respondents rated the outcomes on a seven-point scale from "very bad" to "very good" with "neither good nor bad" as a neutral midpoint.

Eighty-two female representatives at the telephone company completed this questionnaire. For each person, an expectancy motivation index was computed as the sum across 18 outcomes of the products of the valence times expectancy ratings. Hackman and Porter correlated this index with a number of criterion variables, including supervisory ratings of job involvement and effort, supervisory assessments on the company's Employee Appraisal Form, error rate, sales effectiveness, and a composite criterion which consisted of the job involvement, error rate, and sales data. These correlations are displayed in Table 7. Note that almost all the performance criteria are significantly correlated with the expectancy motivation index. In particular, the correlation with the composite criterion is .40 ($N=82$, $p<.01$). Although these correlations are not overwhelmingly large, they are certainly of sufficient magnitude to suggest that the expectancy motivation instrument used here has considerable validity for job performance criteria in this sample of individuals.

Mitchell & Albright (1972) generated a list of outcomes for their expectancy process instrument by consulting the literature and drawing upon the prior work experiences and intuitions of Albright, a former naval officer. Their outcomes, for use with naval aviation officers, included five intrinsic things such as "feeling of self-esteem," and "feeling of self-fulfillment," and seven extrinsic things such as "authority," "prestige," and "salary." Fifty-one naval aviation officers rated these outcomes for instrumentality and indicated on a seven-point scale ("not at all true" to "very true") how much they agreed that the outcome would occur "if I do a good job in my present position." The valence ratings were made for each outcome on a seven-point scale in response to the question "How important is this to me?" Respondents also indicated their expectancy that effort would lead to high performance by rating the amount of effort required for good performance on a five-point scale with alternatives ranging from "I only have to exert a slight amount of effort" to "I have to work extremely hard."

The product across the 12 outcomes of valence times instrumentality times expectancy of performance was computed for each respondent. This product correlated .26 ($p<.05$) with superior rated effort; .64 ($p<.01$) with self-rated effort; .31 ($p<.05$) with superior rated performance; and .19 (NS) with self-rated performance. Thus, this expectancy process instrument is significantly related to three of the four criteria and seems accordingly to have some degree of validity as a measure of process expectancy motivation.

Table 7

Correlations between Hackman and Porter's Expectancy Motivation Index and Job Performance Criteria

Supervisor's ratings of involvement and effort	.27**
Employee Appraisal Form	
quality of work	.06
quantity of work	.37**
cooperativeness	.13
judgment	.25**
dependability	.36**
initiative	.28**
ability to learn	.25**
Error rate	-.23*
Sales	.31**
Composite criterion	.40**

*p<.05
**p<.01

Source. J. R. Hackman and L. W. Porter. Expectancy theory predictions of work effectiveness. Organizational Behavior and Human Performance, 1968, 3, pp. 417-426.

Measures of General Work Motivation

So far in this chapter we have discussed instruments interpreted as measures of the motivation content factors of outcome valence and individual need, and of the motivation process factor of expectancy times valence. These instruments measure motivation at a fairly molecular level--they measure the components of motivation (valence, need, process). The instruments in this section measure work motivation as a more globally conceived construct. They are self-report measures of job motivation conceptualized as "general devotion of energy to job tasks (Patchen, 1965; p. 26)"; "job involvement" or "the degree to which a person is identified psychologically with his work (Lodahl & Kejner, 1965, p. 24)"; and orientation toward the "Protestant Ethic," a person's attitudes toward work in general rather than toward his particular job (Wollack, Goodale, Wijting, & Smith, 1971; Blood, 1969).

Job Motivation Indices. Patchen (1965) reports on three job Motivation Indices intended to measure "general devotion of energy to job tasks (p. 26)." The three indices are constructed from the following four items:

1. On most days on your job, how often does time seem to drag for you?
   (1) ____About half the day or more
   (2) ____About one-third of the day
   (3) ____About one-quarter of the day
   (4) ____About one-eighth of the day
   (5) ____Time never seems to drag

2. Some people are completely involved in their job--they are absorbed in it night and day. For other people, their job is simply one of several interests. How involved do you feel in your job?
   (1) ____Very little involved; my other interests are more absorbing
   (2) ____Slightly involved
   (3) ____Moderately involved; my job and my other interests are equally absorbing to me
   (4) ____Strongly involved
   (5) ____Very strongly involved; my work is the most absorbing interest in my life

3. How often do you do some extra work for your job which isn't really required of you?
   (5) ____Almost every day
   (4) ____Several times a week
   (3) ____About once a week
   (2) ____Once every few weeks
   (1) ____About once a month or less

4. Would you say you work harder, less hard, or about the same as other people doing your type of work at (name of organization)?
   (5) ____Much harder than most others
   (4) ____A little harder than most others
   (3) ____About the same as most others
   (2) ____A little less hard than most others
   (1) ____Much less hard than most others

Index A consists of the first two items, Index B of all four items, and Index C of the first three items.

Test-retest reliability (with 1 month between test administrations) for Index A was .80 in a sample of 46 employees of an electronics company. The average inter-item correlation for Index B (all four items) administered to 834 employees of the Tennessee Valley Authority (TVA) is .23, which suggests that an internal consistency estimate (calculated from Formula 6.18 in Nurmally, 1967, p. 193) for the four items would be .54. This is low for a reliability estimate but indicates mostly that the instrument, with only four items, is rather short. If it were twice as long--with eight items--and if the average inter-item correlation were still .23, the instrument would then have an internal consistency reliability of .70, an estimate more in the acceptable range.

Patchen reports that the Job Motivation indices have some degree of validity with respect to criteria of supervisory rankings (on "concern for doing a good job"), absenteeism, and productive efficiency. In ten units in the TVA, supervisors ranked employees on their "concern for doing a good job." The median correlation in these units between supervisory rankings and employee scores on Index A (the first two items) was .15. Patchen notes that the reason these within-unit correlations are low may be that there was such a small amount of variance among employees in each unit on the criterion on which they were ranked and on their Index A scores. The median correlation in six units of the electrical company between similar supervisory rankings and scores on Index B (all four items) was .35 (the median N was 12). The correlation between Index A and absenteeism was computed for each of three units of the TVA. In an engineering division Index A correlated -.08 (N=179, NS) with number of absences over the preceding 1-year period; in a nonoperating steam plant, Index A correlated -.16 (N=225, $p<.05$) with number of absences; and in an operating steam plant, it correlated -.30 (N=152, $p<.01$) with absenteeism. In the electronics company, there was no relation between scores on Index B and absenteeism for female production workers. And for engineering personnel in the electronics company, Index B was only weakly correlated with absenteeism (r=-.20, N=17, NS).

Results of these studies in the TVA and the electronic company suggest that the Job Motivation Indices yield scores that are fairly stable over time (i.e., they have adequate test-retest reliability), but their internal-consistency estimates are rather low, perhaps because there are so few items in the instrument. There is evidence that Index A and Index B are weakly related, in the expected direction, to criteria of supervisory rankings, absenteeism, and productivity. These correlations are low, and only some reach acceptable levels of statistical significance. Nevertheless, that they are consistently in the expected direction is an indication they are at least to some extent valid measures of job motivation.

Job Involvement. Lodahl & Kejner (1965) tried to develop an instrument that would measure "the degree to which a person's work performance

affects his self-esteem," that is, "the degree to which a person is identified psychologically with his work, or the importance of work in his total self-image (p. 24)." This notion of job involvement comes conceptually close to work motivation in the general sense; not specific motivation to perform the component tasks of one's job, but motivation to perform one's job when broadly conceived as an integral part of one's life.

Lodahl and Kejner started with a pool of 110 statements culled from interview protocols and already existing questionnaires or generated as potentially tapping the construct of job involvement. After eliminating redundant items and items that 22 expert judges in the behavioral sciences indicated had overly high Q values or were reflecting only moderate degrees (neither high nor low job involvement) of job involvement, they were left with forty items. The items were administered to 137 nursing personnel with instructions to indicate how much they would endorse each as being true about themselves on a four-point scale with alternatives ranging from "strongly agree" to "strongly disagree." Following item analysis and factor analysis of their responses, twenty items were chosen for the final scale by considering item-total correlation, communality, and factorial clarity for each item. These twenty items constitute the long form of the Job Involvement Scale; a short form consisting of six items loading highest on the first principal component is also available. Since the short form correlates .87 with the twenty-item form, it appears to be a reasonable substitution when questionnaire space or testing time is at a premium. The six short-form items are: (1) The major satisfaction in my life comes from my job; (2) The most important things that happen to me involve my work; (3) I'm really a perfectionist about my work; (4) I live, eat, and breathe my job; (5) I am very much involved personally in my work; (6) Most things in life are more important than work.

Internal consistency reliability estimates (split-half, odd-even, with Spearman-Brown corrections) for the twenty-item scale were computed with three samples of respondents. With 137 nursing personnel working in a large general hospital, it was .72; with 70 engineers in an advanced development laboratory, .80; with 46 graduate students in business administration who responded with respect to their "job" as students, the reliability estimate was .89. In another study, Schwyhart & Smith (1972) computed a corrected split-half estimate of .80 with a sample of 149 middle managers. Lodahl and Kejner found that the short six-item form had an internal consistency reliability (split-half, odd-even, Spearman-Brown correction) of .73 in their sample of nurses and engineers taken together. These internal consistency estimates for the two forms of the Job Involvement scale are rather low but perhaps marginally adequate for such an instrument. Job involvement might be a multidimensional construct, and we would not then expect it to reflect internally consistent attitudes. Test-retest coefficients would probably yield more meaningful reliability estimates for the instrument, but we know of no studies providing data on this score.

Lodahl & Kejner (1964) report findings lending some construct validity to their Job Involvement scale. They interpret as "plausible" from the perspective of the meaning of their construct such findings as: Job Involvement correlates with age for nursing personnel ($r=.31$, $p<.05$); for engineers, it correlates with number of people contacted per day ($r=.30$), necessity for working with others on one's job ($r=.34$), and satisfaction with promotion ($r=.38$), supervision ($r=.38$) and people ($r=.37$) (correlations significant beyond $p<.01$).* Additional evidence for the construct validity of the Job Involvement scale comes from a study by Weissenberg & Gruenfeld (1968) who found that in a sample of 92 civil service supervisors, Job Involvement correlated more highly with satisfaction with intrinsic factors such as recognition, achievement, and work itself ($r=-.30$, $p<.01$, people highly involved in their jobs are more satisfied), than with satisfaction with extrinsic factors like security, salary, and policies ($r=-.18$, NS).

We can, therefore, attribute at least some construct validity to the Job Involvement scale. Its correlation with variables like age, supervisory ability, and satisfaction are in the expected direction if the scale is really measuring the construct of job involvement. Internal consistency estimates, although somewhat low, do seem adequate for such a multidimensional construct and scale. However, no evidence bearing on test-retest reliability, which is more meaningful in relation to a multidimensional instrument, is available. And neither can we say much about the validity of the scale in regard to criteria such as productivity or turnover, since such data is also not available. In sum, the Job Involvement scale appears to be a carefully constructed instrument measuring a construct similar to general job motivation. There is at least some evidence for its construct validity, but very little for its predictive or concurrent validity with respect to productivity and turnover criteria.

Survey of Work Values. Hoping to develop an instrument measuring work values, Wollack, Goodale, Wijting, & Smith (1971) defined seven dimensions relevant to the secularized interpretation of the Protestant Ethic: (1) pride in work, (2) job involvement, (3) activity preference, (4) attitude toward earnings, (5) social status of job, (6) upward striving, and (7) responsibility to work. They wrote items representing attitudinal statements that might be differentially endorsed by individuals who have these work values to varying degrees. To determine whether their items would be

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*Lodahl and Kejner at one point comment that high scores on their scale indicate low involvement whereas low scores indicate high involvement, but they interpret the correlations they report as if the reverse were true. For instance, they report the correlation with age as positive ($r=.26$) and say, "The older nursing personnel tend to be more job involved." We assume they altered the signs of the correlation coefficients to facilitate the reporting of their findings.

perceived by others as reflecting these Protestant Ethic dimensions, they had employees of a glass manufacturing company assign each item to one of the defined dimensions according to their judgments of whether the item seemed relevant. Items that did not meet criteria of agreement among the judges in allocation to the dimension were eliminated. Also, the "Responsibility to work" dimension was discarded, because its items failed to meet the allocation criteria. Another sample of employees from the same company scaled the items by rating them according to how much of the work value represented by the relevant dimension each attitudinal item reflected.

Wollack et al. (1971) continued with similar procedures until they eventually had 67 items allocated to six of their original seven Protestant Ethic dimensions. Some examples of their final items appear below:

. A man should feel a sense of pride in his work.

. If the person can get away with it, he should try to work just a little slower than the boss expects him to.

. A man should always be thinking of pulling himself up in the world and should work hard with the hope of being promoted to a higher level job.

. A man should choose the job which pays the most.

. My friends would not think much of me if I did not have a good job.

In responding to these items, a person indicates on a six-point scale ("Strongly agree" to "Strongly disagree") the extent of his endorsement or agreement with each item.

In a sample of 495 workers in a glass manufacturing company working in a variety of jobs ranging from unskilled laborer to management, and another sample of 356 government employees, Wollack et al. computed internal consistency (alpha) estimates for the six Survey of Work Values (SWV) scales. These alpha reliabilities ranged from .53 to .66, with a median of .62. Test-retest reliabilities, with a 1-month interval, in a sample of 66 employees of a large insurance company ranged from .65 to .76 with a median of .70. Both the internal consistency and test-retest estimates seem to fall in the low but adequate range for an instrument like the SWV whose scales might be justifiably multidimensional. Oblique factor analysis yielded six factors accounting for 36 percent of the total variance. These factors do not correspond to the scales determined by the reallocation procedures, and Wollack et al. acknowledge the possibility that SWV scales derived from factor analytic techniques might prove to be more useful. However, what reliability and validity coefficients are presently available have been computed for the reallocation scales (i.e., status, activity, striving, earnings, pride, and involvement).

Wollack et al. report findings suggesting some construct validity for the SWV. Discriminant function analyses using five occupational groups

ranging from professional to unskilled show that weighted combinations of the six scale scores can discriminate among occupational groups in a way that suggests occupations toward the professional end of the occupational continuum seem to have stronger work or Protestant Ethic orientations than occupations toward the unskilled end. Canonical regression analyses indicate the scales seem related to demographic variables like sex, race, education, and urban versus rural background, that have previously been found associated with other measures of work values. There does not yet seem to be evidence showing how related the SWV scales are to criteria of job performance, satisfaction, or turnover indices.

Protestant Ethic Scale. Another instrument intended to tap constructs derived from secular notions of the Protestant Ethic is Blood's (1969) short questionnaire of eight items expressing opinions about work in general. The respondent rates his agreement with each item on a six-point scale from "disagree completely" to "agree completely." The eight items are: (1) When the workday is finished, a person should forget his job and enjoy himself; (2) Hard work makes a man a better person; (3) The principle purpose of a man's job is to provide him with the means for enjoying his free time; (4) Wasting time is as bad as wasting money; (5) Whenever possible a person should relax and accept life as it is, rather than always striving for unreachable goals; (6) A good indication of a man's worth is how well he does his job; (7) If all other things (pay, hours, benefits, etc.) are equal, it is better to have a job with a lot of responsibility rather than one with little responsibility; (8) People who "do things the easy way" are the smart ones. The scale was completed by 420 airmen and noncommissioned officers in the Air Force. A factor analysis of their responses yielded two components: the positively scored items (2, 4, 6, 7) loaded on the first component and the negatively scored items (1, 3, 5, 8) loaded on the second. The eight items, therefore, can be scored to yield two fairly independent scores reflecting what Blood calls "pro-Protestant Ethic" and "non-Protestant Ethic."

Blood found that the "pro-Protestant Ethic" score correlated positively with satisfaction as measured by the Job Description Inventory (JDI) (Smith, Kendall, & Hulin, 1969) and Kunin's (1955) Faces Scale. The "non-Protestant Ethic" score correlated negatively with satisfaction. There is, thus, some but limited evidence for the validity of Blood's instrument.

Alternative Techniques in Measuring Work Motivation

By far the most common technique of measuring motivation or some component of motivation is a self-report questionnaire. People fill out these questionnaires and indicate how desirable certain classes of events or job outcomes are for them. Or they may be describing their personological characteristics, interests, or desires in self-report questionnaires designed as measures of individual needs. Some questionnaires require indications of both relative desire for a set of job outcomes and beliefs about the probability that the outcomes will occur following high levels of effort or performance. Other self-report questionnaires have respondents

indicate relative agreement or disagreement with statements reflecting self-descriptive tendencies to expend energy on one's job, attitudes toward involvement with one's job, or attitudes toward work in general.

Other techniques are also possible, but very rarely used. In this section, we describe instruments illustrative of alternative techniques. We describe Landy & Guion's (1970) instrument in which a person's motivation is measured by peer ratings of his behaviors that reflect varying levels of motivation. Another possible technique is the physiological measure of concentration of serum uric acid in one's bloodstream, with the assumption that its concentration is related to the level of a person's general motivation level. A third technique we describe here involves observing how long an individual will perform a specified physical exercise behavior (step test) when told to do so until he feels like stopping.

Behavioral Scales of Work Motivation. Landy & Guion (1970) developed an instrument to measure the work motivation of engineers. It consists of seven behaviorally anchored scales completed by peers who rate their fellow engineers on effort, "how hard an individual works, not how well."

As the first stage in constructing this instrument, they held a series of workshops in which two groups of organizational representatives (engineers and personnel men familiar with the work) identified and defined broad dimensions of work motivation. Workshop participants also developed descriptions of high, moderate, and low levels of motivation on each dimension and wrote descriptions of behavior (behavioral incidents) representing each level. These descriptions, supplemented by others written by psychologists, made up a pool of 95 behavioral incidents.

In the second stage, the same two groups assigned each incident to a dimension and rated it according to the degree of motivation it represented. Incidents were discarded at this point if there was insufficient agreement on assignment. A third group of judges--twenty professional engineers in a single company--again rated incidents according to the level of motivation they reflected, and incidents were discarded here if judges "disagreed" on their ratings; that is, if the standard deviation of ratings (ratings could vary from 0.0 to 2.0) for an item exceeded 0.4. A fourth group of 21 engineers from another company made similar ratings, except that scales were anchored by one high and one low rated item as determined by the previous groups.

This process yielded seven scales of work motivation, each anchored by five to seven behavioral incidents. The dimensions are listed below with their highest and lowest rated anchoring incidents:

1. Team attitude
   . Go out of his way to find information for a colleague
   . Antagonize people because he will not accept suggestions

2. Task concentration
   . Take no notice of time when involved in a task
   . Accept every invitation for coffee even when involved in a task

3. Independence/Self-starter
   . Ask for projects of his own
   . Mark time while waiting for a piece of equipment to become available.

4. Organizational identification
   . Sell his organization to anyone who seems interested in changing jobs
   . Be last in and first out when it comes to attendance

5. Job curiosity
   . Study the whole system even though he is only working on a small part of it
   . Make assumptions about a problem situation rather than seeking answers

6. Persistence
   . Keep whacking away at a problem until he achieves a solution
   . Quit when he finds that a problem of supposedly moderate difficulty resists all initial attempts to solve it

7. Professional identification
   . Belongs to or joins professional societies
   . Talk down the engineering profession

In completing these scales, a rater rates an engineer's work motivation by indicating the point which best represents his behavioral description.

In an effort to determine inter-rater reliability for their scales, Landy & Guion had two peers rate each of 19 chemical engineers working for a glass manufacturing company. Inter-rater reliability for the seven scales varied form .51 (task concentration) to .82 (persistence) with a median of .71. Inter-scale correlations computed on a larger sample of engineers are large enough to indicate that the scales are not very independent. They ranged from .11 to .70 with a median of .50.

In sum, the Landy & Guion instrument represents a careful and commendable attempt to measure work motivation through behavioral observation. While inter-rater reliabilities for the seven scales do seem adequate for such an instrument, high inter-scale correlations suggest the technique may not have been successful in satisfactorily eliminating systematic halo or other response bias.

Serum Uric Acid Level. Rahe, Rubin, Arthur, & Clark (1968) report that several studies have shown a relationship between levels of serum uric acid and psychological, social, and behavioral variables. Integrating these

findings, they describe the person with high levels of serum uric acid as "One who attacks current environmental demands with zest and aptitude. He characteristically performs well and often attains leadership positions. He does not seem to be unduly put-upon by often substantial life demands; indeed, he appears to thrive on them (p. 2875)." Rahe et al. (1968) and others (e.g., Rubin, Rahe, Gunderson, & Clark, 1970; Rasch, Bird, Hamby, & Burns, 1968) interpret such relationships by suggesting that concentration of serum uric acid is somehow related to motivation. To the extent that it is related, serum uric acid might be used as an index or measure of motivation.

Rubin et al. (1970) tested the hypothesis that serum uric acid concentration was related to motivation in a study with Navy underwater demolition team (UDT) trainees. During the 16 weeks of a training course in underwater demolition, Rubin et al. took a series of about 23 to 30 blood samples from each of 32 trainees in the course. At the same time, trainees also completed a short, four-item questionnaire which the authors report is a measure of motivation. The four items, rated for agreement on a six-point Likert scale, are: (1) I wish that I had waited a few months before starting UDT; (2) I have a better chance of passing the UDT course than most volunteers; (3) UDT isn't what I expected it to be; and (4) Being in the UDT program is the best thing that ever happened to me.

Intra-individual correlations between serum uric concentration and scores on their questionnaire computed across the testing days ranged from +.54 to -.34. Thus, for some people, the correlation is positive, for others it is negative. The inter-individual correlation computed on each testing day ranged from .34 to -.63, indicating that on some days and under some conditions the correlation is positive whereas on other days it is negative. Other data from the same study suggest that serum uric acid levels increased when trainees were eagerly performing difficult tasks with an apparent optimistic attitude and determination to succeed.

This and other studies along a similar vein yield very intriguing results. At this point, however, we have only hints that uric acid level may be related to motivation. This is a very indirect measure and the lack of a conceptual network articulating a theoretical linkage between motivation and uric acid puts a heavy onus on empirical findings for construct validity. Since such findings are tenuous at best, hardly any construct validity can be attributed to the method, and practical limitations make it unlikely that serum uric acid level would be a useful index of motivation among Army enlisted men. Not the least of these is the low "face validity" such a technique would have for Army decision-makers who would need to use findings from a motivation survey to take administrative action. It is difficult to imagine, for example, that a general would decide to take substantive actions to improve motivation in a unit if low motivation were indicated only by low concentrations of uric acid among his troops.

Step Test of Motivation to Excel. Another interesting alternative to the self-report questionnaire is a technique used by Johnson (1969) as a measure of Motivation to Excel among Navy enlisted men in Submarine School.

The apparatus consists of a 20-inch platform for the subject to step up and down on. First, he steps up and down for 5 minutes at the rate of thirty times per minute and then his pulse rate is counted. On the second trial, he is told simply to step up and down on the platform until he feels like stopping. His Motivation to Excel Score (MES) is computed as a function of (a) his duration of exercise in the second trial and (b) his pulse rate counted following the first trial. Johnson found that in a sample of 83 Navy enlisted men attending Submarine School, the MES correlated .23 ($p< 05$) with Aptitude for Sub School (ratings made by section leaders on performance in nonacademic or motivational areas) after the first week and .28 ($p<.05$) with second week ratings on Aptitude for Sub School. To determine whether these relationships would hold up after controlling for intelligence, they partialled out scores on a standard Navy intelligence measure (the GCT) and found the correlations between MES and week-1 and week-2 aptitudes slightly reduced to .20 and .25, respectively.

This presents interesting new possibilities for the measurement of job-related motivation, but again the practical limitation of face validity, if nothing else, would render unlikely the chances of the technique being a useful measure with Army enlisted men.

Summary of Motivation Instruments

1. Measures of Motivation Content

These include measures of how valent, valued, desirable, or important are events, job characteristics, and job outcomes for people in general. They vary primarily in terms of how specific the outcomes or events are; whether they are rated, ranked, or pair-compared; and whether the ratings, rankings, or pair-comparisons are made according to attractiveness, preference, desirability, or importance. Some of these are measures of perceived importance of outcomes for something, whether that "something" is enlistment, reenlistment, effort, performance, satisfaction, or dissatisfaction.

These instruments vary not only according to their internal characteristics, but also in terms of their intended use. Among the many possible uses are:

a. To assess valence of outcomes for people in general to estimate their relative effectiveness as reinforcers or incentives. Datel & Legters (1971) and Bialek & McNeil (1968) appeared to have such a purpose when they measured attractiveness of Army training outcomes for eventual use in a behavior modification program.

b. To test a theory like Herzberg's dual-factor theory which stipulates that some kinds of outcomes (intrinsic) determine (are important for) satisfaction while other kinds of outcomes (extrinsic) determine dissatisfaction.

c. To compare defined groups of people on how they differentially value certain kinds of outcomes. It may be important to know, for instance, that men place more importance than women on security, advancement, and benefits, whereas women place more importance on type of work, co-workers, supervisors, hours, and working conditions.

d. To determine what kinds of outcomes an organization should manipulate to maximize criteria such as satisfaction, performance, or reenlistment. Perhaps, as Nealey (1972) suggests, some outcomes are related to satisfaction but not to productivity or turnover.

There are probably other uses as well. The point is that evaluations of specific instruments such as these should be made in the context of their intended use. A valence instrument evaluated highly for estimating the incentive value of outcomes as possible reinforcers may be useless for testing propositions of dual-factor theory or for determining what specific outcomes to vary to differentially impact job satisfaction, productivity, and turnover.

How should the Army be measuring valence of outcomes? Although the kinds of considerations we mentioned earlier imply that there really is no one best way for all purposes, perhaps it would be helpful to list some general guidelines we feel should be followed in developing valence instruments of practical utility in the Army.

. To ensure that outcomes are maximally relevant and meaningful to those judging them, they should be generated by or elicited from the judges. Thus, instead of speculating about what outcomes to list, the investigator should somehow get the judges themselves to tell him. Although conducting interviews or "seminar workshops" is often a useful way to obtain the relevant outcomes, larger samples can be reached by a questionnaire method, perhaps of the type that Olson & Rae (1971) used. They administered an open-ended questionnaire asking respondents to list five things they liked about the Army and five things disliked.

. Once a tentative pool of outcomes has been generated, the investigator may wish to edit them before including them in a final list of outcomes to be judged for valence. This editing should be done so the outcomes are made fairly specific, perhaps not as specific as the outcomes used by Datel & Legters (1971) (e.g., "one month's supply of Brasso") but certainly more specific than things like "security" or "advancement." Information about valences of relatively specific outcomes is likely to be more useful for suggesting organizational actions or policy changes intended to motivate personnel. Thomas (1970), for instance, found that valences of specific outcomes were more highly correlated with rated intentions of scientists and engineers in the Air Force to reenlist than valences of more general outcomes.

. Although direct self-report methods have some potential flaws such as social desirability bias, they are likely more practical and workable

when there are large numbers of respondent judges and many outcomes to be judged. Nealey's (1970, 1972) two-phase method, while an interesting and potentially useful technique, would likely be difficult to use for long lists of outcomes. Other indirect methods which rely on content analysis of free responses [such as the procedure used by Evans & Laseau (1950) in which they analyzed the contents of letters written by General Motors employees during a contest called "My job and why I like it"] may be prone to subjective error on the part of content analyzers.

. Evaluating or judging outcomes according to how liked, attractive, desired, valued, or preferred they are is probably better than evaluating them according to how important they are. Evaluations of importance may be subject to ambiguity, and there may be confusion, if not downright disagreement, among respondents about the meaning of "importance." Of course, if the referent of importance--importance for what--is clearly specified and if the investigator is more concerned about ultimately relating responses to criteria like satisfaction, productivity, or turnover, or about comparing the various relationships an outcome has with each criterion, importance evaluations do appear more useful.

Other motivation content instruments measure individual needs, desires, or interests. They are measures of individual differences and infer need or desire from preferred outcomes, self-descriptions on either objective or projective personality tests, or self-descriptions of interests. Measures of interests tap mainly an individual's preferences for certain kinds of activities over others. Measures of differences among individuals in their needs, desires, and interests are summarized below:

How Important Questionnaire (Carlson, 1970)

Description: 196 job characteristics and circumstances to be rated on degree of importance. Its three major factors or scales are "Support: Dependence on physical and social environment," "Advantage in environmental returns," and "Competence: Mastery of job and environment."

Samples and Settings: 213 assembly men in the manufacturing department of a moderately large electronics firm.

Reliability: Internal-consistency estimates for the three factors or scales were in the 90's.

Validity: Low to moderate relationships with standardized tests of abilities and personality (not mentioned in main body of text here) suggest some evidence for construct validity.

Job Attitude Scale (Saleh, 1971a)

Description: 120 pair-comparison items which reflect intrinsic and extrinsic job outcomes. Yields primarily a "general intrinsic score" as well as scores for each type of intrinsic and extrinsic outcome.

Samples and Settings: Hourly, clerical, and supervisory employees; elderly male managers; male public school teachers; college undergraduates.

Reliability:
1) Split-half estimate is .94.
2) Test-retest estimate (2-week interval) is .88.

Validity: Correlations with CPI scores and comparisons between college and high school students and between managers and supervisors provide moderately strong evidence for construct validity of the general intrinsic scale.

Work Components Study (Borgatta, 1967)

Description: 64 items reflecting job situations to be rated for desirability. There are seven scales of needs or types of desires.

Samples and Settings: Male and female college-level new hires in lower level management positions.

Reliability: Internal consistency estimates for the seven scales range from .66 to .83.

Validity:
1) No differences were found between WCS scores of those who left at the company's initiative and those who left at their own initiative.
2) Some evidence for validity in predicting performance for the "competitive desirability" scale.

Minnesota Importance Questionnaire (Weiss et al., 1964)

Description: 380 pair-comparison items measuring perceived importance of job outcomes. Yields scores on 20 job-related needs like "achievement," "activity," and "authority."

Samples and Settings: Janitors, maintenance men, assemblers, machinists, office clerks, salesmen, engineers, and representatives of miscellaneous other occupations.

Reliability: Internal consistency estimates for the 20 scales range from .73 to .94 with a median of .82.

Validity: Findings that extrinsic outcomes seem more important for blue-collar occupations, whereas intrinsic outcomes are more important for engineers, provide some evidence for construct validity.

Self-Description Inventory (Ghiselli, 1971)

Description: 64 pairs of adjectives, one from each pair to be chosen as most or least self-descriptive. Yields scores on following needs: occupational status, self-actualization, power, high financial reward, and job security.

Samples and Settings: Diverse occupational groups including managers; clerks; foremen; skilled, semiskilled, and unskilled workers; students.

Reliability: Little evidence for reliability available.

Validity:
1) Moderately strong evidence for construct validity:
a) "Need for occupational status" distinguishes among occupational groups presumed to differ on this need.
b) "Need for actualization" correlates .41 with interviewer's ratings.
c) "Need for high financial reward" correlates .42 with interviewer's ratings.
2) Moderately strong evidence of empirical validity for managers, (correlations with rated performance) but no evidence of empirical validity for line supervisors or line workers.

Thematic Apperception Test (Atkinson, 1958)

Description: Respondent tells stories about 20 ambiguous pictures. Yields scores on needs for achievement, power, affiliation, and some others as well.

Settings and Samples: A wide diversity of samples and settings over the many years of its use.

Reliability:
1) Test-retest estimates for need achievement range from .26 to .78.
2) Internal consistency estimates for need achievement rarely exceed .30 to .40 (Entwisle, 1972).

Validity: The voluminous literature on the TAT provides moderately strong construct validity. Very little evidence is available to indicate that it is significantly related to job behaviors in formal work organizations.

Strong Vocational Interest Blank (Campbell, 1966, 1971)

Description: The respondent judges 399 items of varying formats according to whether he likes, dislikes, or is indifferent to them. Yields scores indicating how similar a person's interests are to those of people working in various occupations.

Samples and Settings: Used with a wide diversity of samples but predominantly with people considering the type of occupations usually entered by college graduates. Scales have been developed for Army Officers, Air Force Officers, Navy Officers, and Navy midshipmen.

Reliability:
1) SVIB scales are very stable: median test-retest reliability even with a 22-year interval has been estimated at .76.

2) Navy Officer Retention Scale has test-retest reliability estimated at .57 (ten-year interval) and .65 (eight-year interval).

Validity:
1) Extensive research provides strong evidence that SVIB scales predict persistence in an occupation.
2) Navy Officer Retention Scale has moderately strong evidence of validity--cross-validated correlations of .24 ($N=599$, $p<.01$) and .30 ($N=412$, $p<.01$) with reenlistment.
3) A scale developed to predict voluntary disenrollment from the Naval Academy's "plebe summer" has moderately strong evidence of validity --a cross-validated correlation of .36 ($N=1163$, $p<.01$) with disenrollment.

2. Expectancy-Valence Measures of Motivation Process

These instruments require respondents to indicate how valent, desirable, or important is each outcome in a list, and the perceived expectancy of attaining it. A person's motivation score is generally computed as the sum, across outcomes, of valence times expectancy.

Studies conducted by Hackman & Porter (1968) and Mitchell & Albright (1972) illustrate the kinds of results obtained with process expectancy motivation instruments. Although the magnitude of correlations from such studies is not earthshattering, the consistency with which they occur strongly suggests that an instrument constructed such that it yields a score representing the sum of the products of valence times expectancy for a number of outcomes meaningful and relevant to the questionnaire respondents, is likely to be a valid measure of expectancy process motivation.

3. Measure of General Work Motivation

Instruments in this category measure general work motivation by assessing motivational attitudes toward one's job or toward work in general. They usually purport to measure a more global conception of work motivation than motivational content or motivational process instruments discussed previously.

Job Motivation Indices (Patchen, 1965)

Description: Four items intended to reflect "general devotion of energy to job tasks."

Samples and Settings: Employees of an electronics company; employees of the Tennessee Valley Authority.

Reliability:
1) Test-retest estimate (one-month interval) for two of the items is .80.
2) Internal-consistency estimate for the four items is .54.

Validity: Scores on the indices are weakly related, in the expected direction, to criteria of supervisory rankings on "concern for doing a good job," absenteeism, and productive efficiency.

Job Involvement (Lodahl & Kejner, 1965)

Description: 20 items describing degrees of job involvement. A short-form, six-item scale which correlates .87 with the long form, is also available.

Samples and Settings: Nursing personnel, engineers, graduate students in business administration, and middle managers.

Reliability:
1) Internal consistency estimates of the long form range from .72 to .89, with a median of .80.
2) Internal consistency of the short form is estimated at .73.

Validity: Correlations in the 20's and 30's with variables like age, supervisory ability, and satisfaction provide some evidence for construct validity.

Survey of Work Values (Wollack et al., 1971)

Description: 67 items representing attitudes, along six dimensions, toward a secularized interpretation of the Protestant Ethic.

Samples and Settings: A wide variety of occupational groups including government employees and employees of a glass manufacturing company; unskilled, semi-skilled, clerical, supervisory, professional, and management employees.

Reliability:
1) Internal consistency estimates for the six scales range from .53 to .66 with a median of .62.
2) Test-retest estimates (one-month interval) range from .65 to .76 with a median of .70.

Validity: Discriminant function analyses showing that the six scales can differentiate among occupational groups and canonical regression analyses showing relationships with variables like sex, race, and education provide some evidence of construct validity.

Protestant Ethic Scale (Blood, 1967)

Description: Eight items representing attitudinal orientations toward or away from the Protestant Ethic.

Samples and Settings: Airmen and noncommissioned officers in the Air Force.

Validity: Positive correlations in the 20's with satisfaction measures provide evidence of validity.

4. Alternative Techniques for Measuring Work-Related Motivation

We described three alternatives to the common self-report, self-descriptive questionnaire. Although these are intriguing techniques which may eventually prove useful, only the peer-behavioral-rating method (Landy & Guion, 1970) is not limited in its present usefulness to the Army by the practical problem of face validity to the would-be user in the Army.

CHAPTER 7

MEASURES OF JOB-RELATED SATISFACTION AND MORALE

This chapter first reviews specific implications of the theoretical discussion of satisfaction and morale, and then instruments developed for use when measuring these constructs.

Implications of Theories of Satisfaction and Morale for Measurement

Satisfaction

Before setting out to measure satisfaction, the investigator must clearly define the particular outcome under consideration--or answer the question: satisfaction with what? Obviously, there are many kinds of outcomes in the Army that may be important to consider with respect to an enlisted person's feelings of satisfaction or dissatisfaction, such as:

- The Army as a whole
- The overall job situation
- The work itself
- Supervision
- Pay
- Co-workers
- Opportunities for promotion
- The food in the mess hall
- Recreational facilities.

The investigator could then adopt a direct measurement strategy and simply ask how satisfied an individual is with the outcomes under consideration. He might ask, for instance, "How satisfied are you with the Army as a whole?" or, "To what extent are you satisfied with your pay?"

The three major conceptual models of job satisfaction reviewed in the theoretical chapters--the need fulfillment model, frame of reference model, and equity model--suggest different kinds of implications for how to measure satisfaction with outcomes such as these. In general, they suggest different ways of measuring the component determinants of satisfaction and how to combine the component measures to derive an index of satisfaction.

Need fulfillment model. This model suggests that satisfaction is a function of the fit between an individual's needs or desires and the availability of environmental rewards to satisfy those needs. Accordingly, to measure satisfaction, the investigator obtains a measure of how much an individual desires an outcome (or set of outcomes) and how much he perceives the outcome in his environment. The difference of outcome desirability minus outcome availability should correspond to how satisfied a person feels.

For example, to measure satisfaction with "supervision" in the Army, the investigator first asks a question like this: "How desirable to you is it to have a supervisor who considers your feelings when overseeing your work?" Then he asks: "To what extent does your present supervisor consider your feelings when overseeing your work?" The index of satisfaction with supervision is computed as the individual's response to the second question minus his response to the first. By computing the sum of several such difference scores for a set of outcomes, the investigator is theoretically measuring satisfaction in a more general sense--e.g., satisfaction with the individual's overall job situation (if all the outcomes were job related), or satisfaction with the Army as a whole (if they were all related generally to Army life).

The multiplicative version of the need fulfillment model suggests that besides measuring outcome desirability and outcome availability, the investigator should also measure outcome importance. The difference of desirability minus availability is multiplied by the importance of the outcome to derive the final satisfaction index. Some researchers, however, (e.g., Wanous and Lawler, 1972; Ewen, 1967; Mobley and Locke, 1970) have found that using outcome importance in this way does not much improve the simple subtractive need fulfillment index as a measure of satisfaction.

Frame of reference model. The frame of reference model focuses on the degree of discrepancy an individual perceives between characteristics of outcomes in his present environment and some external standards of comparison. To measure satisfaction with a particular outcome, the investigator measures its perceived characteristics as the person presently experiences it and its perceived characteristics in the frame of reference or comparison standards. He then computes a discrepancy score as the difference between these two component measures.

There are several different ways of conceptualizing the frame of reference. For instance, the frame of reference might be conceptualized as the person's notion of ideal outcomes, or outcomes he expected before joining the Army, or outcomes he obtained in jobs before joining the Army.

Instead of measuring separately characteristics of presently available outcomes and characteristics of frame of reference outcomes, the investigator might choose to measure the discrepancy between these directly by asking:

. "Are you getting as much pay as you feel you should be getting?" (With ideal outcomes as the frame of reference)

. "Are you getting paid as much as you expected you would before you joined the Army?" (With expected outcomes as the frame of reference)

. "Are you getting paid as much in your job in the Army as you were in your job before you joined the Army?" (With previous jobs as the frame of reference)

The frame of reference model is not limited to characteristics of outcomes themselves as the dimension along which to order outcomes for the purposes of comparison. That is, the investigator is not limited to measuring the discrepancy between the amount of pay a person now receives and the amount in his frame of reference, or the extent to which his supervisor is considerate and the extent of supervisory consideration in the frame of reference. Instead of focusing on outcome characteristics (like amount of pay, extent of supervisory consideration), the investigator might choose to measure the relative value or desirability of present outcomes in comparison to the value or desirability of outcomes in the frame of reference. For example, he might measure frame of reference discrepancies by asking:

. "How good or bad is your pay in comparison to what you think it should be?" (With ideal outcomes as the frame of reference)

. "How much better or worse is your pay than you expected it would be before you joined the Army?" (With expected outcomes as the frame of reference)

. "How much better or worse is your pay in your present Army job than it was in your jobs before joining the Army?" (With previous jobs as the frame of reference)

Equity model. The equity model of job satisfaction suggests that feelings of dissatisfaction result when a person perceives his ratio of inputs/outcomes inequitable (too high or too low) relative to the ratio of inputs/outcomes of referent others. The implication is that to measure satisfaction, the investigator should measure the person's perceptions of his own inputs, his own outcomes, his referent other's inputs, and his referent other's outcomes. The index of satisfaction would then be computed to reflect the difference between a person's own ratio of inputs/outcomes and his referent other's ratio.

Like their implications for measuring motivation, implications of equity theories for measuring satisfaction are vague on too many critical issues to be immediately useful as the basis of a measure of satisfaction. In particular, equity theories are vague about the specific dimensions along which inputs and outcomes are to be ordered, about how persons differ in what they perceive as inputs or as outcomes, about how to combine several inputs or several outcomes when computing the equity ratios, and about precisely who is the person's referent other.

Unlike need fulfillment models and frame of reference models, both of which make readily apparent implications for measuring feelings of satisfaction and dissatisfaction, equity models, as presently formulated, lack the conceptual specificity to be of much help as measures of satisfaction.

Morale

The term "morale," as used by military authors, seems to connote elements of both satisfaction and motivation, as well as group related concepts like

cohesiveness. Also, "morale" suggests an ideological commitment to values like patriotism, a sense of honor, courage, and a positive and adaptive attitude toward adversity.

Morale is such a complicated construct with so many components that the task of measuring all of them with self-report instruments in the hope of combining them somehow to derive a single index seems hopeless. The investigator might try to measure satisfaction (but satisfaction with what outcomes?), motivation (motivation to do what?), cohesiveness (in what group? at the platoon level? company level? battalion level?). He would be hard put to develop an accurate self-report measure of courage, honor, patriotism, determination, willingness to self-sacrifice for the group, or adaptive attitude toward adversity, all of which are important components of morale. Unless further theoretical and conceptual work defines the aspects of morale in more manageable terms, the investigator is not likely to develop a practical, self-report measure of what military people mean by "morale" by trying to measure its components.

Of course, the investigator need not limit himself to self-report measures. Military commanders have traditionally gauged the morale of their troops by attending to indicators like AWOL and sick call rates. Also, they have used behavioral signs like the smartness of troops when marching, how they perform on their duty stations and in athletic contests, and whether they express pride in their units. All these indicators of morale are presumably apparent to observers who, by watching what troops do, should be able to estimate the level of their morale. The implication is that if he were to classify these behavioral indicators of morale, the investigator might be able to improve the commander's traditional, informal "indicator measure" of morale by designing instruments that helped the commander focus more systematically on those aspects of the troops' behaviors that most reliably and validly reflect their morale.

The method of "scaled expectations" (Smith & Kendall, 1963; Landy & Guion, 1970; Folgi, Hulin, & Blood, 1971; Campbell, Dunnette, Arvey, & Hellervik, 1973) lends itself very well to the development of behavioral scales of morale. This method has frequently been used with considerable success to develop sets of rating scales for job performance. To develop morale scales by this method, the investigator follows a procedure similar to that outlined below:

. He first conducts a series of seminars or workshops in which he asks knowledgeable and experienced military personnel to relate "critical incidents" of morale; that is, anecdotes or stories of occasions when they saw a military unit or individual do something that reflected some level of morale--high, low, or average.

. After collecting a large number of such incidents--usually, several hundred--the investigator edits them to make them clearer and more succinct and then develops behavioral categories reflecting the behavioral domain of most of the incidents. He is guided by comments from workshop participants who, while provoding behavioral incidents of morale, also have discussed tentative categories for the incidents they provided.

. The investigator then returns to the same workshop participants who provided the original incidents and has them classify edited incidents according to the categories he defined. Also, he asks them to rate each incident according to the level of morale--how high or low--it depicted.

. Analyses of these categorizations and ratings of incidents reveals which are "best" in terms of how well participants agree on both categorization and rating.

. After identifying the best incidents ("best" means lowest standard deviation of the rating and highest agreement on which category the incident belongs in) the investigator has a second group of workshop participants rate and classify the incidents to verify the ratings and classifications of the first group.

. Then, the best incidents from these second workshops are used to anchor various points along the final scales as defined by the behavioral categories of morale.

To use such scales, the commander must decide which behavioral incident in each scale or dimension most accurately describes the behavior of the unit whose morale he is rating. Thus, the final morale scales closely represent the particular behavioral dimensions of "morale" as the term is used in the Army and facilitate the accurate observation and recording of morale-related behavior.

Satisfaction and Morale Instruments in Use

In the rest of this chapter, we review instruments which seem to measure job-related satisfaction. Some of these instruments have, on occasion, been called morale measures. For example, the SRA Attitude Survey has been described as a measure of morale (Science Research Associates, 1970), as has Scott's Semantic Differential instrument (Scott & Rowland, 1970). Since the content of these instruments seems to reflect mostly feelings of positive or negative affect toward aspects of the job situation, we discuss them as measures of satisfaction. There are practically no measures which reflect the complexity and richness of morale as the term seems to be used in the military. That is, we found no self-report measures in which respondents could indicate both their satisfaction and their motivations as well as their feelings of group cohesiveness, pride, attitudes toward adversity, and the other components of morale as discussed in Chapter 4.

Satisfaction measures are classified according to two major categories:

1. Measures of overall satisfaction. These are instruments yielding one index of something globally conceptualized as "overall satisfaction." Both single-item measures and multi-item scales have been developed to tap this construct.

2. Measures of satisfaction with specific facets of the job situation. Among the many job facets typically included in such instruments are pay, promotional opportunities, supervision, co-workers, job itself, and company policies. This type of instrument yields a satisfaction index for each job aspect it addresses and may provide scores for anywhere from one to twenty scales. In some instruments, these are multi-item scales; in others, each scale contains only one item.

Difference score measures are discussed as a particular type of multi-item, facet measures. A relatively new development in satisfaction measurement, such instruments have respondents make at least two sets of ratings, one describing the actual job situation surrounding the respondent and another indicating his preferred or ideal job situation. The difference between these two sets of ratings is then assumed to reflect his satisfaction. The less the difference between his preferred and actual job situation, the greater his presumed level of satisfaction.

A commonly used type of single-item, facet instrument is what we term "survey questionnaires." We single these instruments out for special attention because they raise different issues of reliability and validity. These instruments are most typically analyzed item by item. They are commonly constructed and administered in-house by industrial and military organizations when trying to measure attitudes of employees toward the organization, their jobs, supervision, etc. They are used as diagnostic instruments--to provide management with information bearing on administrative action they should take to maximize organizational goals--more often than as measures of satisfaction in a strictly conceptual sense.

Measures of Overall Satisfaction

Multi-Item Measures

Several instruments measuring overall job satisfaction or satisfaction in general are available. Multi-item scales tapping this construct generally include items asking how the respondent feels about his job in general, how he feels about some specific aspects of his job, how his job compares to other jobs, and sometimes, what are some of the characteristics of his job and overall job situation. Responses to these items are summed to yield one score that represents overall satisfaction. To illustrate the kinds of instruments constructed as measures of overall satisfaction, we review these frequently used instruments: the Hoppock (1935) Job Satisfaction Questionnaire; the Brayfield and Rothe (1951) Job Satisfaction Index; and the Kerr (1948) Tear Ballot. Another and more recent instrument, the Survey of Organizations (Taylor & Bowers, 1972), also has a general satisfaction scale which, however, seems intended more as a measure of group than individual satisfaction.

Hoppock's Job Satisfaction Questionnaire. Perhaps the earliest measure of job satisfaction, Hoppock's (1935) questionnaire consists of nine items,

four of which are scored for general job satisfaction. Each item is scored from 100 for the response indicating minimum satisfaction to 700 for maximum satisfaction. The satisfaction index is then computed as the average of all item responses.

Using his questionnaire, Hoppock (1935) collected satisfaction data from 88 percent (N=309) of the working adult population of New Hope, Pennsylvania. He computed a corrected split-half correlation for the four items as .93. On the basis of this finding, it appears that his four-item scale has fairly good internal consistency reliability.

Hoppock computed average satisfaction scores for the different occupational categories in his sample and found that people with lower status jobs such as unskilled and semiskilled workers scored lower on overall satisfaction than managers and professional personnel. His results indicate that the following occupation groupings could be ranked in increasing order of job satisfaction: unskilled and manual workers; semiskilled workers, skilled and white collar workers; sub-professionals and lower management; and professionals and upper management. Since other investigators have subsequently derived similar conclusions from results obtained with other satisfaction instruments, Hoppock's instrument seems to have some degree of construct validity.

Although Hoppock's is perhaps one of the earliest measures of job satisfaction, it is still occasionally used today. For example, Schletzer (1966) found that in a sample of 185 graduates of professional curricula like medicine, law, and accounting, Hoppock's scores correlated .83 with the Brayfield and Rothe (1951) overall satisfaction instrument and .75 with Schletzer's Job Dimensions Inventory, another measure of overall satisfaction. And Carlson (1969) found job satisfaction as measured by the Hoppock Questionnaire correlated .55 with a performance index in a sample of blue collar workers with a high degree of correspondence between their abilities and the requirements of their jobs. For blue collar workers with low ability-job fit, the correlation was only -.06. Such findings provide additional evidence in favor of the construct validity of Hoppock's instrument.

Brayfield-Rothe Job Satisfaction Index. Brayfield & Rothe (1951) tried to develop a measure of overall job satisfaction which could be used in a wide variety of jobs. Starting with a pool of 246 items, they had students in a class on personnel psychology judge each item according to the degree of satisfaction it reflected. Items chosen for inclusion in the final instrument had Q values less than 2.0, were distributed along the entire range of satisfaction, did not refer to specific job aspects but rather were general in content, and were deemed acceptable by management representatives. Eighteen items make up the questionnaire. Some examples appear below:

. My job is like a hobby to me.
. I am often bored with my job.
. I definitely dislike my work.

Items are rated on a five-point scale with alternatives ranging from "strongly agree" to "strongly disagree." An overall job satisfaction score is computed as the sum of the 18 ratings with a possible range of from 18 to 90.

With a sample of 231 female clerical and secretarial employees, Brayfield and Rothe report a corrected odd-even estimate of .87. In another study, Brayfield, Wells, & Strate (1957) obtained a corrected odd-even estimate of .90 for 41 male and .78 for 52 female civil service employees, suggesting at least adequate internal consistency reliability.

Correlations between the Job Satisfaction Index and Hoppock's questionnaire provide some evidence of construct validity for both. Brayfield and Rothe found this correlation to be .92 in a sample of 91 night school students. As indicated earlier, Schletzer (1966) found that the Brayfield and Rothe instrument correlated .83 with the Hoppock Questionnaire in a sample of 185 graduates of professional schools at the University of Minnesota. Brayfield, Wells, & Strate (1957) found that the Job Satisfaction Index correlated .40 ($N=41$, $p<.01$) with the SRA measure of satisfaction for male civil service employees, but that the correlation, although positive, was not significant for female civil service personnel ($r=.20$, $N=52$, NS).

A recent study by Shepard (1970) provides further evidence for the construct validity of the Brayfield and Rothe measure. He compared mean satisfaction scores obtained by workers in jobs classified beforehand into three levels of "functional specialization": Automobile assemblers (N=96) were in the high specialization category, oil refiner process control operators (N=92) in the medium specialization category, and maintenance craftsmen in an automobile factory (N=117) in the low specialization category. Shepard found that workers with the most specialized jobs obtained the lowest scores on the Brayfield-Rothe questionnaire, whereas workers in the least specialized jobs obtained the highest scores. This agrees well with the commonly held assumption that job satisfaction is negatively correlated with degree of job specialization. Many people expect that workers who have highly specialized jobs, such as most assembly line jobs, for instance, would be bored and unfulfilled by their narrow jobs and would express their lack of fulfillment as job dissatisfaction.

In sum, available evidence indicates that the Brayfield and Rothe instrument is both reliable (internal consistency) and, according to tenets of construct validity, valid to at least some extent.

The Tear Ballot for Industry. Kerr's Tear Ballot (1943, 1948) is another early instrument measuring overall job satisfaction. Kerr generated items for his instrument by scouring the psychological and personnel literature and then had a panel of five industrial psychologists critically appraise them. Finally, each word in each item was checked against the Thorndike word list to ensure that it was at a low vocabulary level. This process resulted in ten items rated on five-point scales and an eleventh rated on a seven-point scale.

Respondents indicate their answers to each question by tearing the questionnaire at the response they wish to make. Kerr argues that this tearing method is superior to writing implements because of savings in administration time by not having to distribute pencils and because respondents are favorably impressed by the anonymity of not having to make any written marks on the form.

Kerr (1948) reports corrected split-half reliability estimates computed on eight samples of business and industrial employees: for seven male retail office employees, .65; 86 female retail clerks, .68; 20 male retail supervisors, .68; 125 female factory workers, .73; 58 male retail clerks, .76; 70 female retail office employees, .80; 13 female retail supervisors, .80; 84 ship carpenteers, .82. The median of these is .76. Speroff (1959) administered Kerr's Tear Ballot to 36 factory workers and obtained a test-retest (with 1-week interval) reliability of .81. Thus, although the internal consistency estimates seem somewhat low, the test-retest estimate indicates an adequate level of reliability.

Kerr (1948) selected 98 wage earners at random off the street to fill out his questionnaire and indicate both the total time spent in the civilian labor market and total number of jobs held during that time. He found a correlation of .25 ($N=98$, $p<.05$) between total satisfaction score and tenure rate (time in labor market divided by number of jobs). He argues that at least some variance in job satisfaction is accounted for by stable personality traits, independent of the person's present job situation, and that since an individual is likely to be as satisfied with one job as with any other by this reasoning, his present level of job satisfaction should be related to his history of leaving previous jobs. From this point of view, the correlation of .25 is evidence for construct validity. The correlations between individual items and job tenure rate ranged from .14 to .63 with a median of about .27. Speroff (1959) collected similar data from 36 factory workers and found that the correlations between the items and a criterion of job tenure rate ranged from .19 to .84 with a median of .43. With this replication, we can be reasonably confident that there is indeed a relationship between scores on Kerr's Tear Ballot and one's history of job turnover. Whether a similar relationship exists for the criterion of <u>future</u> job turnover is another matter, however.

A number of other studies that bear on construct validity of Kerr's Tear Ballot can also be mentioned here. Van Zelst (1951) found that it correlated .82 ($p<.01$) with average popularity rating in a sample of 66 construction workers. Zintz & Kerr (1951), studying workers in a manufacturing company, obtained a correlation of -.42 ($N=53$, $p<.05$) between Tear Ballot scores and percent hearing loss, with age partialed out.

Overall, Kerr's Tear Ballot appears to have at least adequate reliability based on internal consistency and test-retest estimates. Several studies have related it to a wide array of criteria and report many substantial and statistically significant relationships. In particular, the Tear Ballot seems related to the rate with which an individual has changed jobs in the past.

Survey of Organizations. As part of their Survey of Organizations questionnaire (Taylor & Bowers, 1972), researchers at the Institute for Social Research at the University of Michigan include seven items to measure overall satisfaction in organizations. The items, three of which are listed below, were selected, apparently, to tap the major components of job satisfaction identified in previous empirical and theoretical work:

1. All in all, how satisfied are you with the persons in your work group?

2. All in all, how satisfied are you with your job?

3. Considering your skills and the effort you put into the work, how satisfied are you with your pay?

Respondents rate these items on a seven-point scale with alternatives ranging from "very dissatisfied" to "very satisfied." Since group scores on these seven items intercorrelate so highly, they are summed to yield one overall group satisfaction score.

Mean scores on the satisfaction items collected from 749 work groups were submitted to a cluster analysis which yielded an alpha coefficient for the seven items of .87, an internal consistency estimate indicating adequate reliability.

Evidence for construct validity of the satisfaction scale comes from analysis of "cross-lag" correlations between the satisfaction scale and other scales on the survey instrument. In a cross-lag analysis, measures of two things, say A and B are taken at time "1" and then again at time "2." The four sets of resultant measurements (Measure A at time 1, measure A at time 2, measure B at time 1, and measure B at time 2) are intercorrelated. Inference about direction of causality can be made from the pattern of intercorrelations. For example, if A1 correlates very highly with B2 but B1 does not correlate with A2, then one can infer that the thing measured by A causes the thing measured by B more than the other way around. If the pattern of such correlations and inferred directions of causality conform to theoretical expectations, the measures acquire construct validity.

Taylor & Bowers (1972) report cross-lag correlations between the satisfaction scale and the organization climate scale of the Survey of Organizations as computed from data gathered from a sample of 284 work groups. Since their theory posits that satisfaction is a dependent variable relative to organization climate--meaning that climate theoretically causes satisfaction rather than vice versa--they need to show that the correlation between climate at time 1 and satisfaction at time 2 is appreciably greater than the correlation between satisfaction at time 1 and climate at time 2. Table 8 displays these intercorrelations (which are actually "mean multiple correlation coefficients among domains for two time points," p. 85). Note that the pattern of correlations conforms to

theoretical expectations. The correlation between climate at time 1 and satisfaction at time 2 (.78) is significantly greater than the correlation between satisfaction at time 1 and climate at time 2 (.50; significance of the difference in correlations: $t=6.44$, $p<.001$). Apparently, since these analyses were done on data collected from "all multiwave administrations of 1969 edition of the Survey of Organizations," (p. 85) the interval between time 1 and time 2 varies for different work groups in their sample. We could not determine precisely what those time intervals were.

Taylor and Bowers also report findings bearing on the concurrent and predictive validities of the satisfaction scale. Drawing upon data accumulated from longitudinal studies of organizations (including plants, laboratories, and sales regions) in 15 companies, they report correlations between group satisfaction scores and organizational criteria of efficiency, product quality, attendance, and human costs. The gist of these data is that satisfaction as measured by the Survey of Organizations seems, overall, to be significantly correlated negatively with direct labor costs, overtime labor costs, absenteeism, and turnover. These relationships constitute fairly strong support for the validity of the instrument as a measure of group or organizational satisfaction.

Single-Item Measures

Robinson, Athanasiou, and Head (1969) point out that if only a general, overall measure of satisfaction is required, a single-item index might serve equally as well and with less administration time, than a scale of several items (from four to twenty items in the scales discussed in the previous section). In fact, some researchers use single-item indices as criteria with which to evaluate or compare their multi-item scales. For example, Smith, Kendall, and Hulin (1969) report using a single-item "Faces" rating item (discussed below) in at least one of their studies validating the Job Description Index. Wanous and Lawler (1972) also used a single-item rating scale as one of the validating criteria in their study of satisfaction measurement. We review, in this section, some of the many single-item, overall job satisfaction indices used and hope to convey a flavor for the variety of possibilities for such a measure.

A single-item, overall rating index sometimes included in survey questionnaires with military personnel follows (from Kirschner, Dryden, and Hartman, 1970; and Cantrell, Hartman, and Sims, 1967):

> Following is a job-satisfaction rating scale. You are requested to indicate your satisfaction with your present job by placing an "X" in the box in front of the statement that best describes your present feelings about your present job. Statement "A"

Table 8

Intercorrelations Between Satisfaction and Organization Climate as Measured by the Survey of Organizations at Two Points in Time (for all multi-wave administrations of the 1969 edition of the Survey of Organizations; N=284 Work Groups)

	Organization Climate 1	Organization Climate 2	Satisfaction 1	Satisfaction 2
Organization Climate 1	----			
Organization Climate 2	.67	----		
Satisfaction 1	.78	.50	----	
Satisfaction 2	.78	.88	.55	----

Source.--Adapted from J. C. Taylor and D. G. Bowers. Survey of Organizations. Ann Arbor, Michigan: University of Michigan, 1972, p. 86.

represents a complete dislike for the job while statement "O" represents a complete satisfaction with it. The other statements fall in between these two extremes. Find the statement that most nearly describes your feelings about your job and place an "X" in the box in front of that statement. Mark an "X" in only one of the boxes.

___ A. This is the single worst assignment that I have ever had.
___ B. One of two or three terrible assignments--all equally bad.
___ C. A terrible assignment, but not the worst by any means.
___ D. A very bad assignment.
___ E. A bad assignment.
___ F. Poorer than the average assignment.
___ G. Almost as good as the average assignment.
___ H. An average assignment
___ I. Just a little better than the average assignment.
___ J. Clearly better than average.
___ K. A good assignment.
___ L. A very good assignment.
___ M. An excellent assignment, but not quite superior.
___ N. One of two or three superior assignments I have had--all equally superior.
___ O. The single most superior assignment that I have ever had.

Analyzing survey data gathered from 2,122 maintenance personnel (airmen) in twenty military units in Europe, the Far East, and the continental United States, Cantrell et al. (1967) compared survey responses of those who checked the five alternatives reflecting highest satisfaction on this index with the response of those indicating the five lowest. Their general findings were that quality of supervision seemed a potent factor in determining level of job satisfaction and that wives' attitudes toward the Air Force were related to the satisfaction reported by the married airmen.

Sanford, Steinkerchner, Cantrell, Trimble, and Hartman (1971) used a somewhat less elaborate version of the index used by Cantrell et al. (1967) and Kirschner et al. (1970). Sanford et al. used a graphic rating scale anchored at six points with numbers ranging from 0 to 15 in increments of three. Five of the six anchoring numbers were defined as follows (scale point 12 was not defined):

0	3	6	9	12	15
terrible	a bad assignment	poorer than the average assignment	better than the average assignment		excellent

They found that of the 737 Air Force sentries in their sample, the majority reported marked degrees of dissatisfaction. Most responses were at 6 or less on the graphic rating scale.

Another type of rating scale, less verbally demanding than others, simply requires respondents to check one of six faces, each representing some degree of positive or negative affect or how he feels about his job. Three of the faces show varying degrees of happiness or positive affect and three show unhappiness. The degrees of happiness and unhappiness are conveyed by portraying different degrees of smiling and frowning, particularly through the curvatures of the mouths and the characteristics of the eyes. Kunin (1955) reports the original development of the "faces" reporting format.

Smith, Kendall, and Hulin (1969) administered the six-point "faces" rating scale and other measures of satisfaction (Job Description Index with various response formats) to eighty employees of a farmers' cooperative to evaluate different response formats on the JDI. Scores on the overall, single-item faces scale correlated .64 with an overall score derived from summing the JDI scales.

As a by-product of the studies done to develop and validate the JDI, Smith et al. (1969) report correlations between the one-item faces scale and age, rated performance, and absenteeism. Note in Table 9 that although these correlations are low, three out of four are significant at $p<.05$ and all are in the direction one might expect for a satisfaction measure.

Please note that most of the one-item, overall satisfaction indices are evaluative measures. They more or less directly ask for responses along some continuum of affect or satisfaction toward the job. For example, they require respondents to indicate directly how satisfied they are, how good or bad their job assignments are, or which of a set of smiles and scowls best represents their feelings toward their jobs. A few single-item indices are more descriptive measures. For instance, Gould (1972) used as measures of overall satisfaction the following two single-item indices:

I find my job:	My job utilizes my talents and training:
1. extremely dull	1. not at all
2. very dull	2. very little
3. fairly dull	3. fairly well
4. so-so	4. quite well
5. fairly interesting	5. very well
6. very interesting	6. excellently
7. extremely interesting	7. perfectly

Although these items are not purely descriptive in the sense of providing objective descriptions of the respondents' working environment, they are certainly more descriptive than previously discussed single-item measures that asked for ratings on explicit scales of satisfaction, for example.

Table 9

Correlations Between the Overall, One-Item Faces Scale and Age, Rated Performance and Absenteeism

	Sample (males)	N	r	Statistical Significance
Age	electronics manufacturer	98	.22	.05
Performance	brass manufacturer	57	.26	NS
Performance	electronics manufacturer	47	.39	.01
Absenteeism	electronics manufacturer	98	-.22	.05

Source.--Adapted from P. C. Smith, L. M. Kendall and C. L. Hulin. The measurement of satisfaction in work and retirement. Chicago: Rand McNally, 1969, p. 63.

In analyzing responses of over one hundred thousand airmen in 97 different "career ladders," Gould (1972) found substantial differences within and between occupational groups on both items. These differences are not systematic enough to suggest construct validity for the items as satisfaction measures. Nevertheless, the items do illustrate how relatively descriptive, single, overall satisfaction indices might be developed.

Measures of Facet Satisfaction

Measures of facet satisfaction seem to be among the most widely used measures of job-related satisfaction. The facets or scales included in such instruments can be chosen on theoretical grounds of what dimensions adequately cover the domain of job-related satisfaction. They can be chosen on the basis of a literature review of previously used dimensions. They can be based on results of cluster or factor analytic techniques. Or they can be chosen simply on the basis of what dimensions are of greatest importance or interest in a given situation. The instruments can have either multi-item or single-item scales. Items can be either evaluatively or descriptively worded, and they can be scaled according to a variety of formats including satisfaction-dissatisfaction, agree-disagree, smiling face-frowning face, or other continua such as graphic rating scales with 0 to 100 percent at the end points or descriptively quantitative end points like "no opportunity for achievement" to "maximum opportunity for achievement." There are undoubtedly other major differences among these instruments as well, not to mention their reliabilities, validities, reading level, and so on.

Multi-item Measures of Facet Satisfaction

Job Description Index. The JDI is the culmination of the "Cornell Studies of Satisfactions," a program of research begun in 1959 as part of a more extensive research effort of retirement headed by Patricia Cain Smith (Smith, Kendall, and Hulin, 1969). Smith et al. set for themselves the task of developing a measure of job-related satisfaction with the following characteristics (Smith, 1967):

. Applicable to a wide range of job classifications and to people in varying job levels

. Low reading level, so that even poorly educated workers would have no trouble understanding the questions

. Short, easily adminstered in groups, and easily scorable

. Yielding a set of scores reflecting satisfaction in a number of discriminable job areas (facets)

. Free from obvious biases such as acquiescence

. Reliable from the point of view of both internal consistency and stability over time

. Valid.

After reviewing the literature reporting factor analytic studies of job satisfaction and analyzing their own preliminary categories, Smith et al. decided on five facets or areas of satisfaction they wanted their instrument to measure: satisfaction with work, pay, opportunities for promotion, supervision, and co-workers. Since there is some evidence (Yuzuk, 1961) that when an inventory consists of evaluatively worded items, much of the variance can be attributed to one general factor (which would work to preclude the emergence of a set of discriminable or relatively independent job facet factors), they elected to use descriptively worded items instead. After reviewing other inventories, and appealing to their own common sense, they generated a list of thirty to forty adjectives for each of the five scales. Then they had 317 Cornell students and residents of Ithaca, New York, indicate which adjectives in the five lists described the best and also the worst job they ever had. Adjectives which did not discriminate between worst and best jobs--that is, which were not used more frequently to describe either worst or best jobs--were eliminated since they probably did not represent important characteristics for determining job satisfaction.

The final stage of their item selection procedure was to have a sample of men from each of three companies and a sample of women from two companies, in a variety of job circumstances (the five sample sizes ranged from 29 to 58) describe their present job in terms of the five lists of adjectives. Smith et al. split each sample in half on the basis of total scores of each of the five scales, into a satisfied half and a dissatisfied half. Only those items which individually discriminated between these two halves (i.e., which were related to the total scale score) were retained.

The final version of the JDI consists of nine adjectival or descriptive items for the pay scale and for the promotion scale, and eighteen items in each of the other three scales, for a total of 72 items. The scales and representative items are listed below:

i) Work
- . fascinating
- . creative
- . on your feet

ii) Supervision
- . hard to please
- . annoying
- . around when needed

iii) People
- . boring
- . talk too much
- . loyal

iv) Pay
- . satisfactory profit sharing
- . insecure
- . highly paid

v) Promotions
- . opportunity somewhat limited
- . good chance for promotion
- . regular promotions

When completing the JDI, respondents describe their present jobs by checking for each item "Y" (for yes) if the item describes the particular facet-scale aspect of their job, "N" (for no) if the item does not describe it, and "?" if the respondent cannot decide.

Estimates of internal consistency reliability were derived from responses obtained from eighty male employees in two electronic plants. Corrected split-half estimates for the five scales range from .80 for "pay" to .88 for "co-workers," with a median of .86 (Smith et al., 1969). In a sample of 45 employees in a farmers' cooperative, test-retest estimates, with a 3-year interval between testing, range from .45 to .75.

Scale intercorrelations, derived from a pooled, heterogeneous sample of 980 males in 21 plants, range from .28 to .42 with a median of .39. For 62/ females, these intercorrelations range from .16 to .52 with a median of .32. Although there is some intercorrelation among the five JDI scales, the median amount of variance in any one scale accounted for by another scale is only approximately 12 percent, while the median amount of reliable variance in a scale, based on internal consistency estimates, is approximately 74 percent. Thus, a median of approximately 50 percent of a scale's variance is both reliable and specific to that scale. These figures indicate that the five JDI scales are reasonably independent and reliable.

Evidence for the construct validity of the JDI comes from more recent studies in which JDI scores have been related to turnover indices. Hulin (1966) administered it to 350 female clerical workers and found that scores for 26 of them who quit 5 months later were lower, particularly on the work, promotions, co-workers, and supervision scales. Waters and Roach (1971) found that in a sample of 160 nonsupervisory, female employees in an insurance company, termination during the year following JDI administration correlated .24 ($p<.01$) with the satisfaction with work scale. None of the other four JDI scales was correlated significantly with termination, however. Frequency of absences during the year following JDI administration correlated -.28 ($p<.01$) with the work scale and -.18 ($p<.05$) with satisfaction with co-workers. Thus, at least some JDI scales significantly predict probability of termination and number of absences.

In sum, the JDI has been developed with meticulous attention to both theoretical issues underlying satisfaction measurement and psychometric issues such as item and scale characteristics. It is an easily administered, easily scored instrument yielding five fairly independent satisfaction scores in the job areas of pay, promotion, work itself, supervision, and co-workers.

Its items are at a low reading level and should be readily comprehensible even to respondents with little formal education. At least two studies have found that some of its scales have predictive validity with respect to termination and absenteeism criteria for female employees. Reliability estimates based on internal consistency coefficients are also adequate.

Semantic Differential Scales. Scott (1967) developed a semantic differential approach to measuring job satisfaction (he called it morale) which requires a respondent to check a point on a continuum defined by a pair of polar opposites, to describe a specific facet of his job. Instead of checking whether or not an adjective describes his pay, for example, Scott's approach has the respondent check a point on the continuum defined by the adjective and its opposite. Scott (1967) chose to include "me at work" as a primary scale on his instrument and also, after reviewing the factor analytic literature, the following scales:

- My opportunities for growth
- My job
- My supervisor
- Top management
- Company benefits
- My fellow workers
- My pay
- My working conditions.

Each scale had a number of polar-opposite semantic differential items, from 75 for the "me at work" scale, to 25 for some of the others. The polar opposites had a list of quantifiers ranged between them so that the respondent could indicate the point on the continuum defined by the opposites that were most descriptive of his situation. For example, the scale "My Job" had the following three pairs of polar opposites:

	Extremely	Quite	Slightly	Neither One Nor the Other	Slightly	Quite	Extremely	
1. routine	____	____	____	____	____	____	____	varied
2. complex	____	____	____	____	____	____	____	simple
3. bad	____	____	____	____	____	____	____	good

Respondents were instructed to regard the concept (job facet) at the top of the questionnaire page and check the appropriate point on each polar-opposite continuum to describe the concept.

After administering his instrument to a sample of 92 engineers, Scott factor analyzed the responses for each concept (job facet) and found in each case that a large proportion of common variance was accounted for by an affective orientation toward the job facet. In a subsequent study, Scott and Rowland (1970) found that similar factor structures emerged for each of the nine scales in a sample of 262 male civil service employees of a naval ammunition depot. Therefore, this method does seem to tap evaluative dispositions--that is, satisfaction--toward facets of the job situation. Satisfaction scores are computed by summing a respondent's scores on only those polar-opposite items found to load heavily on the general evaluative or satisfaction factor (Cherrington, Reitz, & Scott, 1971).

Minnesota Satisfaction Questionnaire. The MSQ (Weiss, Dawis, England, & Lofquist, 1967) was developed as a companion instrument of the Minnesota Importance Questionnaire (MIQ). Earlier in this review, we interpreted the MIQ as a measure of needs, inferred from assessing valence of possible job outcomes or importance of these outcomes for the individual's potential satisfaction. The MSQ measures actual or presently experienced satisfaction with the same outcomes. The underlying conceptual differences between the MSQ and the MIQ nicely illustrate the distinction between valence and satisfaction: Satisfaction refers only to affect an individual presently experiences with regard to some aspect of his job situation, whereas valence reflects the degree and quality of affect he expects to experience because he has either experienced similar affect in the past or is presently experiencing it toward a particular aspect of his job. That is, the MSQ measures presently experienced satisfaction, while the MIQ measures anticipated or potential satisfaction by measuring needs inferred from outcome valences.

The original MIQ, as noted previously, consisted of one hundred items rated on a five-point rating scale of importance. (This format for the MIQ was later revised to a pair-comparison format to improve scaling properties.) The MSQ consists essentially of these same one hundred items rewritten as satisfaction items. There are twenty satisfaction scales, five items per scale. Like the MIQ items, the MSQ, according to a Flesch count of readability, is classified as "very easy," at the fifth grade level. Its twenty scales, each with the item correlating highest with the scale score in a sample of 1,793 employed individuals, are:

1. Ability utilization. The chance to do something that makes use of my abilities.

2. Achievement. The feeling of accomplishment I get from the job.

3. Activity. Being able to keep busy all the time.

4. Advancement. The changes for advancement on this job.

5. Authority. The chance to tell other people what to do.

6. Company policies and practices. The way company policies are put into practice.

7. Compensation. My pay and the amount of work I do.

8. Co-workers. The way my co-workers get along with each other.

9. Creativity. The chance to try my own methods of doing the job.

10. Independence. The chance to work alone on the job.

11. Moral values. Being able to do things that don't go against my conscience.

12. Recognition. The praise I get for doing a good job.

13. Responsibility. The freedom to use my own judgment.

14. Security. The way my job provides for steady employment.

15. Social service. The chance to do things for other people.

16. Social status. The chance to be "somebody" in the community.

17. Supervision--human relations. The way my boss handles his men.

18. Supervision--technical. The competence of my supervisor in making decisions.

19. Variety. The chance to do different things from time to time.

20. Working conditions. The working conditions.

Respondents rate items on a five-point scale with alternatives ranging from "very dissatisfied" to "very satisfied." The MSQ yields a satisfaction score for each scale plus a general satisfaction score computed as the sum of each of the twenty items correlating highest with their respective scales; that is, the items listed above.

A short form of the MSQ consists of the twenty items, one from each scale, correlating highest with the twenty facet scales in the long form. The short form yields three satisfaction scores--intrinsic satisfaction, extrinsic satisfaction, and total or general satisfaction. Items were assigned to the intrinsic and extrinsic scales of the short form according to their loadings on two general factors (accounting for 39 percent of the total variance) which emerged from a factor analysis of responses to twenty items obtained from 1,460 men employed in a variety of occupations (Weiss, Dawis, Lofquist, & England, 1966).

Weiss et al. (1967) report normative data on the long form of the MSQ for 27 occupational groups including professional, technical, and managerial occupations; clerical and sales occupations; service occupations; and miscellaneous categories. For each group, they present internal consistency reliability estimates for each scale on the long form MSQ. Table 10 shows the median internal consistency estimates. The median estimates (medians over all the normative groups) for the 21 scales range from .93 for "recognition" to .78 for "responsibility." Most scales have median internal consistency estimates in the 80's. Test-retest estimates with a 1-week interval, are available for a sample of 75 employed night school students. These estimates ranged from .66 for "co-workers" to .91 for "working conditions," and again, most estimates are in the 80's. In another sample of 115 persons employed in diverse occupations, test-retest estimates were computed with a 1-year interval between testing. These estimates range from .35 for "independence" to .71 for "ability utilization" with a median of .61. The MSQ scales seem, therefore, to be at least adequately reliable from the perspective of internal consistency and also sufficiently stable over time to be judged reliable from a test-retest perspective as well.

There appears to be evidence in support of the construct validity of several of the long form MSQ scales. In one series of studies conducted to test a major hypothesis derived from the Theory of Work Adjustment--that satisfaction is a function of the fit between an individual's needs and the reinforcement system of his job--Weiss et al. (1964) predicted that people identified as having both a high need and a high level of reinforcement in a particular MSQ scale area would report more satisfaction in that area than would people with a high need but a low level of reinforcement. The MIQ was the measure of an individual's needs in each of 16 areas, and the MSQ the measure of his level of satisfaction in the same 16 areas. To measure reinforcement level, they had five Ph.D. psychologists rank 19 job categories (at least 33 individuals were in each job category) on each of the 16 MIQ-MSQ scale areas for the amount of reinforcement the job would provide in that area. Then, for each scale area, Weiss et al. classified individuals in their sample as having either high or low needs (measured by the MIQ) and as receiving either high or low levels of reinforcement from their jobs.

An example of the kind of analysis they performed is shown in Table 11, which displays means and variances in satisfaction scores for the "ability utilization" scale of the MSQ according to cross-classification of individuals by need and reinforcement level. Note in Table 11 that the high need, high reinforcement group scored significantly higher on satisfaction with ability utilization than the high need, low reinforcement group ($F=69.25$, $p<.001$), supporting the hypothesis derived from the Theory of

Table 10

Estimates of Internal Consistency and Stability Reliabilities for the MSQ Long Form Scales

Scale	Median Internal Consistency Estimates	Stability Estimates One-week N = 75	Stability Estimates One-year N = 115
1. Ability utilization	.91	.84	.71
2. Achievement	.84	.81	.62
3. Activity	.86	.83	.49
4. Advancement	.93	.85	.67
5. Authority	.85	.85	.47
6. Company policies and practices	.90	.80	.61
7. Compensation	.91	.79	.62
8. Co-workers	.85	66	.40
9. Creativity	.87	.87	.66
10. Independence	.85	.75	.35
11. Moral values	.81	.83	.53
12. Recognition	.93	.86	.69
13. Responsibility	.78	.87	.61
14. Security	.80	.70	.58
15. Social service	.89	.84	.57
16. Social status	.79	.80	.63
17. Supervision--human relations	.89	.86	.66
18. Supervision--technical	.86	.90	.68
19. Variety	.86	.80	.69
20. Working conditions	.89	.91	.69
21. General satisfaction	.88	.89	.70

Source.--Adapted from D. J. Weiss et al. Manual for the Minnesota Satisfaction Questionnaire. Minnesota Studies in Vocational Rehabilitation: XXII. Work Adjustment Project, Industrial Relations Center, University of Minnesota, Minneapolis, 1967.

Work Adjustment. Findings similar to these provide evidence of construct validity for seven of the 16 MSQ scales studied: namely, ability utilization, advancement, variety, authority, achievement, creativity, and responsibility (the first three scales received the strongest support).

Additional evidence for the construct validity of MSQ scales comes from studies indicating that it differentiates occupations in the same way that previous research (e.g., Herzberg, Mausner, Peterson, & Capwell, 1957) has shown that occupations differ in terms of level of job satisfaction--professionals are relatively more satisfied than unskilled groups. Weiss et al. (1967) report that of the 25 occupational groups in their sample:

. Field representatives (who are high level management consultants) scored highest on eight of the 20 MSQ facet scales.

. Teachers had the highest means on seven other scales.

. Managers scored highest on four scales.

. Licensed practical nurses scored highest on the remaining scale.

On the other hand:

. Housekeeping aides scored lowest on nine scales.

. Laborers were lowest on seven scales.

. Small equipment operators were lowest on two scales.

. Part-time nurses, food service workers, and toy assemblers scored lowest on the remaining two scales.

In addition to these studies, there are other bits and pieces of evidence which, in combination with the evidence presented here, indicate rather strong evidence for the construct validity of the MSQ (long form).

The short, twenty-item form of the MSQ also appears both reliable and valid. Internal consistency estimates for the three scores derived from it, obtained from 1,723 people in seven occupational categories, are:

. Intrinsic satisfaction. For the different occupational groups, internal consistency estimates ranged from .84 to .91 with a median of .86.

. Extrinsic satisfaction. Estimates ranged from .77 to .82 with a median of .80.

. General satisfaction. Estimates ranged from .87 to .92 with a median of .90.

Table 11

Mean Satisfaction Scores on the Ability Utilization Scale of the MSQ, According to Need (MIQ) and Reinforcement Level

Group	N	Mean	Variance
1. High need	203	18.6	35.27
2. Low need	285	17.8	15.16
3. High need, high reinforcement	120	21.0	17.32
4. High need, low reinforcement	83	15.1	40.88
5. Low need, high reinforcement	83	19.8	7.55
6. Low need, low reinforcement	202	16.9	15.94
7. High reinforcement	203	20.5	13.65
8. Low reinforcement	285	16.4	23.76

Variance ratio
group 1 vs. group 2: $f(202, 284) = 2.33$ ($p<.01$)

F-tests of mean differences
group 3 vs. group 4: $F(1,201) = 69.24$ ($p<.001$)
group 5 vs. group 6: $F(1,283) = 41.80$ ($p<.001$)
group 4 vs. group 6: $F(1,283) = 8.24$ ($p<.01$)
group 7 vs. group 8: $F(1,486) = 102.95$ ($p<.001$)

Source.--D. J. Weiss et al. Construct Validation Studies of the Minnesota Importance Questionnaire. Minnesota Studies in Vocational Rehabilitation: XVIII. Industrial Relations Center, University of Minnesota, Minneapolis, 1964, p. 31.

Occupation group differences on the MSQ short form suggest some construct validity. Of the 25 or so occupational groups in their normative sample, electronic assemblers scored lowest on the "intrinsic" and "general" scales, and assemblers (not electronic) scored lowest on the extrinsic scale. Salesmen scored highest on all three scales. These results agree with previous research on occupational differences in job satisfaction.

Generally, both the long and the short forms of the MSQ have been shown to be reliable and valid measures of facets or components of job satisfaction. Current research is underway to try out additional scales on the long form and to change the rating format from a "very dissatisfied--very satisfied" scale to a scale of "not satisfied" to "extremely satisfied," which seems to have somewhat improved psychometric properties.

Triple Audit Opinion Survey. Dawis & Weitzel (1971) list the following as what they consider desirable features of measures of employee attitudes (satisfaction):

. It should be a two-pronged measure of both "satisfaction" and "importance."

. It should use a rating format as opposed to alternative formats such as ranking or pair-comparisons.

. The rating scales should be one-sided, with the "neutral point" (i.e., "not satisfied") at one end and should have five rating alternatives.

. The instrument should be multidimensional (i.e., have several facets) with a "general" dimension included.

After arguing that these characteristics are indeed desirable in satisfaction instruments, Dawis and Weitzel point out that their Triple Audit Opinion Survey (TAOS) has these characteristics.

The TAOS is an instrument tailor-fitted to the particular situation where it is used. First, researchers interview a sample of individuals to be surveyed. Then, on the basis of the interviews, they decide on the most appropriate set of scales to include in the main survey questionnaire administered to all employees. Fifty-eight areas or scales are presently available, twenty of them nearly identical to the twenty MSQ facet scales. The typical tailor-fitted TAOS consists of about 25 scales rated for satisfaction and the same 25 scales with slightly reworded items rated for importance. There are four items per scale. The survey includes a personal data sheet and a free response section with three general, open-ended questions.

Since twenty of the presently available 58 TAOS scales are very similar to the MSQ-MIQ scales, previous remarks about the reliability and validity of

the MSQ and MIQ also apply to the parts of the TAOS that overlap with these two instruments. Thus, the TAOS scales in common with the other two instruments have fairly good reliability and validity in general. Dawis & Weitzel (1971) report internal consistency estimates for the 58 scales averaging in the 80's.

SRA Attitude Survey. The SRA Attitude Survey (Science Research Associates, 1970) was developed with the joint efforts of staff at the Industrial Relations Center of the University of Chicago and Science Research Associates. A series of non-directive interviews with employees in a variety of jobs and industrial settings suggested 14 job-related problem areas or facets. These, along with a fifteenth dimension tapping reactions to the survey instrument itself, make up the main body of survey. Each dimension has a number of items, between two and eight, for a total of 78 items. Items are brief statements describing either aspects of the job situation (descriptive items) or affective reactions to the job aspects (evaluative items). Respondents indicate on a three-point rating scale, with the alternatives "agree," "?," or "disagree," their extent of agreement with each item. The survey yields a score for each of the 15 dimensions as well as a total score representing general or overall satisfaction (Ash, 1954). Apparently, the survey is also sometimes scored item by item, providing percentages or frequencies for the item response alternatives. The 15 dimensions included in the survey and an illustrative item for each are:

1. Job demands. There is too much pressure on my job.

2. Work conditions. For my kind of job, the working conditions are okay.

3. Pay. My pay is enough to live on comfortably.

4. Employee benefits. The organization's benefit program is okay.

5. Friendliness and cooperation of fellow employees. The people I work with help each other out when someone falls behind or gets in a tight spot.

6. Supervisor-employee interpersonal relations. My supervisor gets employees to work together as a team.

7. Confidence in management. I have confidence in the fairness and honesty of management.

8. Technical competence of supervision. My supervisor knows very little about his job.

9. Effectiveness of administration. This organization operates efficiently and smoothly.

10. Adequacy of communication. You can say what you think around here.

11. Security of job and work relations. You can get fired around here without much cause.

12. Status and recognition. I'm really doing something worthwhile in my job.

13. Identification with the company. I really feel part of this organization.

14. Opportunity for growth and advancement. I have little opportunity to use my abilities in this organization.

15. Reactions to the inventory. Filling in this questionnaire is a good way to let management know what employees think.

The Attitude Survey was administered to 134 employees for a central buying department in a large merchandising organization. Test-retest correlations, with a 1-week interval, for the first 14 scales (not including "reactions to the inventory") ranged between .60 and .81 with a median of approximately .74. Most coefficients were in the 70's. In another sample of 65 line manufacturing employees, test-retest estimates ranged from .62 to .85 with a median of approximately .74 for the same 14 scales. Ninety-eight salaried employees also completed the instrument, and test-retest estimates for them were from .64 to .78 with a median of .75. Generally, then, test-retest estimates for the 14 scales are in the 70's, with a median consistently around .74 to .75. Since the SRA Attitude Survey is often used as a group instrument, reliability estimates computed on group scores might also be usefully noted. For groups of twenty individuals, test-retest coefficients are all in the high 90's. Internal consistency estimates for the 14 dimensions, computed on responses by 175 employees in a variety of jobs in a steel container fabricating plant, ranged from .60 to .84 with a median of .68 (Ash, 1954). With groups of up to five individuals, Ash estimates internal consistencies to be in the high 80's.

Ash (1954) reports a study in which the survey scores of 38 employees in a steel fabricating plant were compared with results of personal interviews with the same employees. Interviews were rated by three judges on dimensions represented in the attitude survey. Table 12 shows correlations between judges' ratings based on interviews and employees' responses on the SRA Attitude Survey. Note in Table 12 that the correlations are all positive and that they range from .28 to .80 with a median of approximately .59. Ash also reports that the Brayfield-Rothe scale of overall satisfaction correlated in the 30's (N=175) with many of the SRA scales and .48 with the total (summed) SRA score. In another study, Brayfield et al. (1957) found that the SRA total score correlated .40 ($p<.01$) with the Brayfield-Rothe scale in a sample of 41 male civil service employees and .20 (NS) in a sample of 53 female employees. These relationships with interview ratings

and the Brayfield-Rothe scale suggest the SRA Attitude Survey has some construct validity.

The preceding discussion of the SRA Survey focused on the main body of the instrument, the 14 job-facets dimensions. When applied in a particular situation, the survey also includes provision for open-ended comments by respondents and up to 21 specific additional items pertinent to the organization being surveyed.

The SRA Attitude Survey has been widely used with personnel in a variety of jobs and industrial settings. Norms are available for more than one hundred thousand individuals in over one hundred companies. This vast amount of normative data is another strength of the SRA Attitude Survey.

Cureton's Satisfaction Questionnaire for Airmen. Cureton (1960) generated a large pool of 1,275 preliminary items for his Airmen Satisfaction (he called it morale) measure by searching the literature for potential sources. His 1,275 original items included items from the TAOS, SRA Attitude Survey, Hoppock scale, several Navy, Army, and Air Force scales, scales used in industrial firms, and instruments reported in journal articles and doctoral dissertations. Items were classified into categories according to their content, and redundant items eliminated. After repeated editing and purification, a final list of 167 items remained. Items are rated on five-point scales with different response alternatives for the various items, such as "definitely yes" to "definitely not," "strongly agree" to "strongly disagree," and "very well satisfied" to "very dissatisfied." Through cluster and factor analytic techniques, Cureton extracted eight scales:

1. General Morale (25 items). On the whole, how much chance do you have in the Air Force to show what you can do?

2. Satisfaction with the Immediate Supervisor (12 items). My supervisor is quick to take care of complaints brought to him by the men.

3. Satisfaction with the Air Force as a Military Organization (7 items). One of the most important factors in preventing an all-out war in the next few years will be a strong Air Force.

4. Job Satisfaction (8 items). My present job suits me better than any other job I know of in the Air Force.

5. Satisfaction with the Civilian Community and with the Attitudes of Civilians toward Airmen (5 items). How well do the civilians near your base get along with the airmen?

Table 12

Correlations Between the SRA Attitude Survey and Interview Ratings (N = 38)

I.	Job Demands	.38*
II.	Working Conditions	.58**
III.	Pay	.60**
IV.	Employee Benefits	.74**
V.	Friendliness and Cooperation of Fellow Employees	.66**
VI.	Supervisor-Employee Relationships	.80**
VII.	Confidence in Management	.75**
VIII.	Technical Competence of Supervision	.61**
IX.	Effectiveness of Administration	.61**
X.	Adequacy of Communication	.36*
XI.	Security of Job and Work Relations	.39*
XII.	Status and Recognition	.35*
XIII.	Identification with the Company	.28
XIV.	Opportunity for Growth and Advancement	.58**

* $p<.05$
** $p<.01$

Source.--P. Ash. The SRA Employee Inventory: A statistical analysis. Personnel Psychology, 1954, 7, p. 343.

6. Satisfaction with the Air Force as a Whole (i.e., with Air Force Life in General) (12 items). How secure is your future in the Air Force compared with what it would be in civilian life?

7. Satisfaction with Management and Communication (12 items). How much does the Air Force tell the men about new things which may affect their jobs; such things as new planes, new equipment, new operating procedures, and the like?

8. Satisfaction with the Unit and its Leadership (11 items). How well do you think your unit is run?

Of the original 167 items, only 82 are scored, and ten of these are scored on both the "general morale" scale and one other scale.

Whitlock & Cureton (1960) administered these scales to another sample of airmen--555 airmen with ranks below master sergeant from a number of bases and in a number of job classifications. They found that except for the scale, "satisfaction with the Air Force as a military organization," all had satisfactory internal consistency reliability estimates. Four scales had reliabilities above .80, one scale had a reliability of .70 (but with only five items), and one scale, as noted above, had a reliability estimate below .70. Excluding the "general morale" scale, the other seven scales have intercorrelations lower than their reliabilities, indicating that they do have specific and reliable variance. The last three scales ("Air Force as a whole," "management and communication," and "unit and its leadership") correlate highly enough with the "general morale" scale so that the weighted sum of their scores (weighted 1.0, 1.0, and 0.5) constitute just as good a measure of "general morale" as the "general morale" scale itself.

Whitlock & Cureton (1960) attempted to estimate the validity of their scales by relating them to a variety of criteria. We briefly summarize some of their findings below:

. Citations. On almost all scales, those who received at least one citation during the previous year (N=86) reported higher levels of satisfaction than those who did not receive citations (N=390). Only for the "job satisfaction" scale, however, is this difference statistically significant ($F=6.80$, $p<.01$).

. Airmen Performance Reports. Airmen with low rated performance reports were <u>less</u> satisfied as indicated by the "general morale" scale, but this difference was not significant (N=295, $F=1.46$, NS). The authors did not relate other scales to this criterion.

. Proficiency Pay. The "general morale" scale did not differentiate those who received proficiency pay (N=14) from those who did not (N=465). The authors did not relate other scales to this criterion.

. Injuries. Of the eight scales, only "Community" was significantly correlated with number of hospital visits for treatment of injuries ($r=.23$, $N=403$, $p<.01$).

. Dispensary Visits. None of the eight scales was significantly correlated (at $p<.05$) with number of dispensary visits during the previous year.

. Disciplinary Actions. On six scales, those with at least some disciplinary action during the past year ($N=19$) scored as more satisfied than those without disciplinary action ($N=447$), but none of these differences is significant at the level of $p<.05$.

. Job Performance (Supervisors' Ratings). All scales except "Community" correlated at better than the $p<.01$ level with rated performance, but none of the correlations was greater than .20 ($N=395$).

. Rated Morale (Supervisors' Ratings). All scales except "Community" correlated at better than the $p<.01$ level with rated morale, but none correlated greater than .25 ($N=395$).

. Absences (Supervisors' Estimates). Only the scale "Air Force as a whole" correlated significantly with estimated absences ($r=.11$, $N=391$, $p<.05$), but since this is only one correlation out of eight, it too can be discounted.

. Compatibility of Work with Training. None of the scales differentiated those who were assigned jobs for which they were trained ($N=335$) from those who were not ($N=55$).

. Performance Rankings. All scales except "Community" correlated significantly ($p<.05$) with performance rankings, but no correlation was higher than .23.

. Military Rank. There was a highly significant tendency for men with higher rank to report higher levels of satisfaction on the "general morale" scale ($F=5.36$, $N=479$, five categories of ranks, $p<.0005$). The authors did not relate other scales to this variable.

. Race. Blacks ($N=45$) report higher levels of satisfaction than whites ($N=435$) on the "general morale" scale ($F=8.77$, $p<.005$). The authors did not relate other scales to this variable.

In general, Cureton's scales are related to some criteria used in his study with airmen, but relationships are not very large. Nevertheless, they do indicate that the instrument has some degree of construct validity.

Roach's Opinion Survey. Roach (1958) administered a 62-item opinion survey to 2,072 employees working in a diverse range of jobs, from clerical positions to top management. Most respondents were female clerical workers. Items in the survey were intended to cover the areas of supervision, compensation, attitude toward the companies, and general issues. Most items were rated on a five-point scale with alternatives from "very well satisfied" to "very dissatisfied." A modified centroid factor analysis yielded a general factor, a sub-general factor, and ten group factors. Below we list these 12 factors, each with the item most highly correlated with it:

1. General Attitude Factor. If you had a friend looking for employment, how would you describe the companies as a place to work? (.50)

2. General Attitude toward Supervision. (Almost all items that concern immediate supervision load on this sub-general factor.)

3. Satisfaction with Job Standards. Do you feel that you know exactly what is expected of you? (.40)

4. Consideration of Supervisor. How well do you like your supervisor as a person? (.40)

5. Work Load and Pressure. How do you feel about the amount of work you have to do--not too much or too little? (.50)

6. Treatment as an Individual. How do you feel about things which the companies do to make work more satisfying? (.60)

7. Pride in Company. How do you feel in general about this company as a company? (.43)

8. Satisfaction with Salary. What is your opinion of the way jobs are classified into salary grades? (.28)

9. Communications. How do you feel about the adequacy of information you get through the "official" sources (compared with "grapevine" sources)? (.39)

10. Intrinsic Job Satisfaction. How do you usually feel about coming to work in the morning? (.33)

11. Satisfaction with Progress. How do you feel about the training you have been given toward developing you for a higher job? (.31)

12. Satisfaction with Co-workers. In general, how do you like the other people who work with you? (.47)

Presumably, these 12 factors and the items defining them can be used as measures of facet satisfaction. We know of no studies that have done this, however, so we cannot discuss Roach's Opinion Survey from the perspectives of reliability or validity.

Job Satisfaction Inventory. Twery, Schmid, and Wrigley (1958) describe a factor analytic strategy similar to the approach taken by Roach (1958). They administered their Job Satisfaction Inventory to 467 aircraft and engine journeymen mechanics in two Strategic Air Command bases and a Training Command base. Their inventory consists of 21 items rated on a five-point scale. A principal axes factor analysis (with squared multiple correlations in diagonals) yielded the six fairly interpretable factors listed below with their highest loading items:

1. General Attitude to the Job. I am entirely satisfied with my job. (.72)

2. Satisfaction with Supervisor. My supervisor could use a lot more training as a technician. (.85)

3. Satisfaction with Higher Echelon. Air Force red tape makes it impossible for me to do a good job. (.80)

4. Satisfaction with Living Conditions. I wish very much that I could get away from this base. (.70)

5. Satisfaction with Co-workers. I like very much the men I work with. (.62)

6. Variety in Job Duties. My job duties are boring and monotonous. (.32)

Again, we have no information regarding the reliability or validity of these factors as satisfaction scales, so we cannot discuss their psychometric properties.

Difference score instruments are a type of multi-item, facet measure of satisfaction which generally require multiple ratings or rankings of various facets of the work situation. There are basically three types of measures which utilize the difference between two sets of ratings or rankings as an index of satisfaction. These types are based on three different conceptual models of satisfaction:

. Equity/frame of reference. This model focuses on the discrepancy between ideal characteristics of outcomes and their actual characteristics, as the source of dissatisfaction. If a person does not feel his outcomes are all they should be according to his frame of reference (i.e., his conception of ideal or "should be" outcomes), he feels inequity (though not necessarily as a result of the same kind of processes discussed with respect to social comparison equity theories [Adams; 1963a, 1965]). Thus, the difference between a person's ratings of "How much should there be?" and "How much is there now?" reflects his feelings of dissatisfaction.

. Desire fulfillment. The desire fulfillment model stresses the discrepancy between what a person desires in his job environment and what he obtains from his environment. Dissatisfaction is reflected in the difference between ratings of "How much would you like?" and "How much is there now?"

. Need fulfillment. This approach differs from the desire fulfillment model in that ratings are made not on desirability and availability of environmental outcomes, but rather on importance and opportunity for need gratification. Dissatisfaction is reflected, according to the need fulfillment approach, in the difference between ratings of "How important is this?" and "How much opportunity is there to satisfy this?"

To illustrate types of instruments using the difference score approach, we review one instrument representative of each of the three conceptual models of satisfaction. The equity/frame of reference model is represented by the instrument constructed by Porter (1961), the desire fulfillment model by a questionnaire constructed by Wanous and Lawler (1972), and the need fulfillment model by an instrument designed by Beer (1966).

Porter's Need Satisfaction Questionnaire. The most frequently used difference score measure is Porter's Need Satisfaction Questionnaire (Porter, 1961). Items included in this questionnaire were designed to represent Maslow's (1954) classification of needs, with two exceptions: the questionnaire does not include items relating to Maslow's physiological need category because it was assumed that within the population of managers, for whom the instrument was designed, these needs were so adequately satisfied that items would be regarded as irrelevant and unnecessary by managerial respondents; another variation from Maslow's categorization is the inclusion of a separate autonomy category, which in Maslow's conceptualization is included in the esteem category. Also, two items are included which are not specific to any one category. The major need areas, each with a representative item, are:

1. Security needs: The feeling of security in my management position.

2. Social needs: The opportunity, in my management position, to give help to other people.

3. Esteem needs: The feeling of self-esteem a person gets from being in my management position.

4. Autonomy needs: The authority connected with my management position.

5. Self-actualization needs: The opportunity for personal growth and development in my management position.

For each item, respondents are asked to answer three questions (below) by circling a number on a rating scale from 1 to 7, low numbers indicating minimum or low amounts and high numbers maximum or high amounts.

a. How much of the characteristic is there now connected with your management position?

b. How much of the characteristic do you think should be connected with your management position?

c. How important is this position characteristic to you?

These three questions follow each core item:

a.	How much is there now	(min)	1	2	3	4	5	6	7 (max)
b.	How much should there be		1	2	3	4	5	6	7
c.	How important is this to me		1	2	3	4	5	6	7

An individual's degree of satisfaction is determined by subtracting his rating on the "is now" question from his rating on the "should be" question. The greater the difference, the more dissatisfied the individual is assumed to be. Results can be analyzed on an item by item basis or by summing across items within a category and dividing by the number of items in the category to obtain a need category score. The "How important is this to me" question is not used in the calculation of an individual's degree of satisfaction.

Porter (1962) obtained responses on his questionnaire from 1,958 managers in a nationwide sample of six thousand representing all levels of management. Results indicated that the vertical location of managerial positions is important in determining the degree of satisfaction of higher order needs. For the needs, self-actualization, autonomy, and esteem, satisfaction increased at each higher level of management from first-level foreman to presidents ($p<.05$). There were no systematic differences in the two lower need categories, security and social. This agrees with the general assumption that as an individual obtains a position higher in the managerial hierarchy, he has more opportunity to obtain prestige, independence, and to do work which is more gratifying. Mitchell (1970) in a study of eight hundred commissioned Air Force officers, using a variation of the Porter questionnaire, also found that satisfaction increases with rank ($p<.025$). The agreement of this data with job satisfaction theory lends some construct validity to this instrument.

Other support for its validity comes from a study by Porter and Lawler (1964) which investigated differences in need fulfillment of managers in tall (many hierarchical levels) and flat (few hierarchical levels) organizations. Tall structures were superior to flat structures in providing satisfaction of

security and social needs, while flat structures were superior in providing satisfaction of self-actualization needs. There were no significant differences for esteem and autonomy needs. This evidence fits the common belief that tall structures (the bureaucratic type of organization) provide greater security and that flat structures give individuals greater opportunity to utilize more of their abilities. The failure to find differences in perceptions of autonomy in tall and flat organizations does provide evidence contrary to popular belief, detracting from this scale's construct validity.

In summary, although there is little evidence available with respect to the reliability of Porter's measure, for managerial samples, at least, it does seem to have some construct validity. It is a widely used difference score measure illustrating our definition of the equity/frame of reference orientation and shows promise as a useful measure of feelings of satisfaction and dissatisfaction.

The Wanous and Lawler Instrument. The Wanous and Lawler (1972) Instrument was designed to compare various conceptual models of satisfaction. It contains 23 items reflecting facets of the work situation. Five representative items are: (1) Self-esteem or respect, (2) Opportunity for growth, (3) Prestige of job inside company, (4) Amount of close supervision, and (5) Opportunity for independent thought.

Items are rated twice to obtain the desire fulfillment measure of satisfaction. They are first rated on, "How much of each quality or characteristic is present on your job?" On a separate page they are also rated on, "How much of each quality or characteristic would you like to be associated with your job?" Both sets of ratings are made on seven-point rating scales.

An index of facet satisfaction is obtained by subtracting the rating of "How much is present" from the rating of "How much would you like"; the smaller the difference, the greater the assumed satisfaction. Overall job satisfaction may be estimated by summing across the difference scores for the 23 facets.

Wanous and Lawler (1972) administered their questionnaire to 208 non-managerial employees of a telephone company who worked on 13 jobs varying in complexity and required skill level. Average inter-item correlations were used as an index of reliability. The internal consistency estimate, .28, is low, as would be expected from a multifaceted instrument.

An overall score of desire fulfillment was compared with a single-item measure of satisfaction, "Generally speaking, I am very satisfied with my job." The correlation between the two was -.54 (the correlation is negative because the desire fulfillment measure is an index of dissatisfaction). Also, desire fulfillment on each facet was correlated with a direct measure of

satisfaction, "How satisfied are you with this aspect of your job?" The average correlation between facet desire fulfillment and the direct measure of facet satisfaction for the 23 facets was found to be -.44. This presents some evidence for the construct validity of the Wanous and Lawler desire fulfillment measure, as it does share some common variance with direct measures of satisfaction.

Beer's Preference Inventory and Job Inventory. Beer's Preference Inventory and Job Inventory (1966) include the same thirty items with some variations. Items represent the same five categories derived by Porter (1961) from Maslow's (1954) theory: security, social, esteem, autonomy, and self-actualization. Beer used judges to categorize items on the basis of Maslow's definitions. Six items were selected to represent each category. Thirty items are grouped on the questionnaire into six sets of five items with each of the five categories represented within a set. The following is an example of one set:

- The status my job gives me.
- Relative freedom from supervision.
- Being told what I am supposed to do and how I am to do it.
- The opportunity to develop my full potential on the job.
- The opportunity to develop close friendships in my job.

Respondents rank the five items within each of the six sets twice. In the Preference Inventory, the individual ranks items on the basis of their importance to him. In the Job Inventory, he ranks each set of five items in the order of the opportunity to satisfy them at work. The computed discrepancy between these two sets of rankings makes up a need fulfillment, difference score of satisfaction, according to our definitions presented earlier.

The score for each need category is obtained by summing ranks assigned each item representing the category. Two scores are obtained for each category, one representing importance and one opportunity for satisfaction. The degree of satisfaction experienced by an individual within each need category is obtained by subtracting the opportunity for satisfaction score for the category from the importance score. Job satisfaction is assumed to be reflected by a small difference between the two scores.

Beer (1968) reports internal consistency reliabilities of each scale of the Preference Inventory and the Job Inventory for 129 clerical employees. The median reliability for the five scales of the Preference Inventory was found to be .74 and .68 for the Job Inventory.

The instrument derives some construct validity from the relationship of its items to Maslow's definitions. Beer (1966) also found that the scales emerged as independent factors in a factor analysis.

Beer (1968) administered his questionnaire to 129 female clerical employees of an insurance company whose jobs had been classified (using job titles and company personnel) into high and low complexity jobs. Data indicated that for this sample, job complexity does not influence need satisfaction.

Overall, Beer's two inventories have moderate reliability. The two inventories do have some construct validity based on the construction of the scales and factor analytic results.

Single-Item Measures of Facet Satisfaction

As with measures of overall job related satisfaction, measures of facet satisfaction also come in single-item varieties. They typically include a set of facets or dimensions of satisfaction but have only one item per scale. Thus, one cannot determine estimates of internal consistency reliability for these instruments. We review some of them to illustrate this type of satisfaction instrument.

The "faces" rating scales of facet satisfaction are similar to the faces scales of overall satisfaction, except that the referent being scaled for satisfaction is a job facet such as "pay," "promotion," etc., rather than "job in general." As used in the JDI studies (Locke, Smith, Kendall, Hulin, and Miller, 1964; Smith et al., 1969), each scale measuring a JDI facet has six faces pictorially depicting a range of expression from smiling to frowning. Respondents check the face that best represents how they feel toward each facet in their present job. Smith et al. (1969) found that the one-item faces scales correlated moderately well with the multi-item JDI scales. In a sample of eighty employees of a farmers' cooperative, correlations between the single-item faces scales and the JDI scales are as follows for the five facets tapped by the JDI:

Satisfaction with . . .	
. Work	.49
. Pay	.50
. Promotions	.69
. Supervision	.63
. Co-workers	.42

These correlations are statistically significant beyond the .01 level of probability. In addition, Smith et al. (1969) report that with a sample of 52 male employees in a chemical plant, the faces "work" scale correlated .34 and the "supervision" scale .47 with salary. These relationships suggest that the single-item faces rating scales may be validly measuring satisfaction with facets of the job situation.

The graphic rating scales used in the JDI validation studies are anchored at the end points with labels "0% satisfied" and "100% satisfied" and ten unlabeled intervals marked off between end points. For each JDI facet area, respondents indicate on the horizontal line representing the continuum from no satisfaction to total satisfaction their own degree of satisfaction with

the job facet. They make one such graphic rating for each of the five JDI facets (Locke et al., 1964). Smith et al. (1969) present correlations between single-item graphic scales and multi-item JDI scales obtained with a sample of eighty employees of a farmers' cooperative:

Satisfaction with . . .	
. Work	.44
. Pay	.45
. Promotions	.47
. Supervision	.51
. Co-workers	.13

Except for the "co-workers" scale, all graphic scales correlate at better than the .01 level of probability with their JDI counterparts, providing some degree of construct validity for both the graphic scales and the JDI.

Both Dunham (1971) and Mackey and Totten (1969) used similar graphic rating scales. In his study of perceptions of civil service employees regarding their career progress, Dunham's questionnaire included one (single-item), graphic rating scale for each of the five job facets which Herzberg defined as "motivators": achievement, recognition, job interest, responsibility, and advancement. He also included a scale for job security. Each facet was described with a brief paragraph. Respondents were instructed to place a mark on the horizontal, unmarked, graphic scales, thinking of the lines as representing continua covering a range from 0 to 100 percent. One of the five scales, the "achievement" scale, appears below:

> Achievement: Organizational positions provide varying opportunities for the incumbent to make significant and self-satisfying contributions to his organization, his profession, and to society. One's opportunities to make such contributions may be different for each of the categories. However, please consider all three categories in deciding on your total opportunities for achievement in my job as follows:
>
> No Opportunity for Achievement — Maximum Opportunity for Achievement
>
> |———————————————————————————————|

These scales are relatively more descriptive than evaluative; respondents describe their jobs rather than feelings toward their jobs. One could assume that respondents describing their jobs as high on opportunity for achievement, recognition for accomplishments, job interest, advancement potential, responsibility, and security would be more satisfied than other respondents. This method, therefore, illustrates another possibility for single-item measures of facet satisfaction.

A commonly used type of single-item facet instrument is what we term "survey questionnaires." Survey instruments commonly administered in-house by industrial and military organizations typically yield as many "scores" as they have items. Such instruments are analyzed item by item; each item is examined, usually, for the proportion or frequency of responses in each response category. For example, a survey item might be one like this: "I like my work"--with three response alternatives, "agree," "can't say," or "disagree." The researchers then compute the frequency or proportion of response for each category, which might be 20 percent, 20 percent, and 60 percent, and report that most people surveyed "disagree" with this item and that, therefore, most dislike their work. Is this a measure of satisfaction? Perhaps some would argue that it is, but with survey instruments like this, the concern seems less to measure satisfaction as a construct than to find out exactly what the items ask. For the item above, it seems fairly clear that people who disagree likely have lower job satisfaction than people who agree. However, the researchers would probably place heavier emphasis on an interpretation tied directly to the item content (and say that the people surveyed seem to dislike their work) than on an inference about job satisfaction as an abstract concept.

Survey items are also often analyzed according to the mean (or median or modal) response to each item. This facilitates a comparison between selected groups or organizations surveyed. For instance, the mean response to the item, "I like my work" by blue collar workers of a company might be 1.2 (where "agree" is scored 3; "can't say," 2; and "disagree," 1) indicating that they dislike their work, whereas the mean response for management personnel might be 2.7, indicating that they do like their work. If there is sufficiently little variance associated with each of the means, the researcher might report that there is a statistically significant difference between them; managers like their work more than blue collar workers do.

A major difference between survey instruments and most other satisfaction instruments reviewed here is that survey instruments are almost always group measures. Instruments like the JDI and Brayfield-Rothe scale could be used to measure satisfaction as a group characteristic (simply by computing a mean score for the group), but they can also serve adequately to measure an individual's satisfaction. One could note an individual's scores on JDI scales, compare them to appropriate norms, and make some inference about his relative level of satisfaction more meaningfully than from his "score" or response on a single survey item. (Perhaps we should note here that single-item measures of overall or facet satisfaction discussed earlier are also more appropriate as group than individual measures.) Thus, although survey instruments can yield a great deal of detailed diagnostic information about relative levels of group or organizational satisfaction, this information is relatively useless for actions at the individual level. One cannot counsel an individual with information only about his responses to items in a survey instrument.

Since the concern when using survey instruments is less to measure a construct like satisfaction than to know about attitudes or feelings toward very narrowly defined content areas (such as parking facilities, medical benefits program, and so on), the issue of validity for these instruments takes on a somewhat different coloring from what we discussed in the context of validity for other instruments. For example, one would not ordinarily expect an expressed attitude toward something as narrowly specific as "cafeteria facilities" (a survey item) to be related to criteria of performance, turnover, or absenteeism. Some survey items (e.g., "I like my work") do seem to be global enough to be conceptually related to such criteria, but most items are much narrower in scope. One way to show validity for such narrowly defined items (there are actually many ways; we describe only one) is to show that responses change over time following a change in the situation. For example, if people expressed a great deal of dissatisfaction with cafeteria service at time 1, and if it were subsequently improved, we would expect people to express less dissatisfaction at time 2 following the improvement. This would constitute construct validity for the item.

Few researchers, however, have bothered to demonstrate this kind of validity for survey items. There seems to be such an overriding faith in the content validity and face validity of survey items that if no change in response were observed after a change in the situation, researchers would probably be more likely to infer that the change in the situation had no impact on satisfaction with--or attitude toward--that situation, rather than that the item was not a valid measure.

The issue of reliability also gets somewhat clouded when applied to survey items. Since responses to each item are analyzed as representing group characteristics, the more individuals in the group whose responses get averaged for the group score, the more reliable the group score becomes. Averaging over individuals in effect "washes out" several potential sources of error that creep into individual measures and decrease their reliability. Dunnette (1966) discusses four such potential sources of error: (1) errors due to inadequate sampling of content, (2) errors due to chance response tendencies, (3) errors due to changes in the testing environment, (4) errors due to changes in the person taking the test.

Only errors due to sampling of content are not at least partially controlled in the process of averaging responses from several individuals to get a group measure. Suppose we administer a survey item to five hundred people in a variety of physical locations during the course of a week (they can't all be tested at once). Assume that chance response tendencies, testing environments, and individual differences ("changes" in the person) are randomly distributed in our sample. Then in averaging across the individuals, errors tend to cancel each other so that they would be reflected not in the mean of the response distribution (recall that the mean is often the statistic which represents a group score on a survey item), but rather in its variance. That is, the greater the impact of the three major sources of error, the greater the variance around the group mean; but the mean itself is not affected.

This line of reasoning leads to the conclusion that the reliability of a survey item yielding a group mean is largely dependent on the number of individuals whose responses contribute to the mean. The larger the group, the more stable or reliable its mean score on a survey item.

We have spelled out in some detail these considerations regarding the validity and reliability of survey instruments partly to explain why hardly anyone computes and reports the validity or reliability of survey items and partly to show why it may not always be so crucial to do so as it is with other kinds of satisfaction instruments. Reliability of survey items is largely dependent on the number of people surveyed, so a researcher can improve the reliability of a survey instrument simply by administering it to more people. Researchers seem to assume the face validity and content validity of survey items perhaps more than is justified. Since many survey items have been shown to discriminate meaningfully among groups (this must be so in order for pollsters to report, for example, that job attitudes of women are different from those of men), they have some degree of construct validity. But it would be prudent to examine construct validities of survey items more systematically. If one particular survey instrument is likely to be used repeatedly in a particular industrial or military organization, it would be well to examine items systematically to ensure that they do indeed discriminate meaningfully among groups and are sensitive to changes in the situation. Perhaps researchers, in practice, do take these steps. However, results of such analyses are seldom if ever reported. It is particularly crucial to show that an item has in the past been sensitive to changes in the situation or discriminates among groups when reporting the lack of difference in means between group scores. Unless a survey item has previously been shown to have some construct validity, one could not know whether to interpret a null result as a failure to pick up a real difference between groups or as a true lack of difference between groups.

Survey instruments used by industrial and military organizations vary according to number of items, item content, generality versus specificity of item content, rating format, and several other parameters. It does not seem worthwhile to review them in detail, because there is hardly any data--about their reliabilities and validities, for instance--by which to evaluate them. The better surveys are those with simple, clear, unambiguous items, at a reading level appropriate to the target population, and written so as to encourage willing participation of respondents.

Relatively narrow survey items are often supplemented in such instruments with some combination of other instruments discussed in this review. They may include a general satisfaction scale, a set of facet scales, or single-item general or facet satisfaction indices. They may include both descriptive and evaluative measures to assess both the characteristics of the collective job situation and the mean affective reaction to it.

Sears Attitude Survey Program. The attitude survey program conducted by Sears (Smith, 1962, 1963) is a good illustration of how a carefully constructed, facet satisfaction instrument can be supplemented by a set of

narrow survey items, many of which are descriptive, to aid in diagnostic interpretation. The questionnaire has 150 items grouped into these categories:

- Supervision
- Kind of work
- Amount of work
- Co-workers
- Physical surroundings
- Financial rewards
- Career future and security
- Company identification.

A set of "core items," included in all administrations of the survey, taps motivation and satisfaction with each area as job facet scales. Thus, meaningful comparisons can be made among the various organizational units at Sears or between different points in time for the same unit in a longitudinal study. Then, other items, survey items, are included whose content varies depending on the particular unit or point in time being surveyed. These specific content items are used to interpret why satisfaction in a particular unit is high or low on any of the eight satisfaction scales.

This program seems to work very well at Sears. It successfully combines the need to compare levels of satisfaction in the many units of a large, decentralized organization (which means that relatively broad satisfaction measures should be used) with the need to pinpoint precisely the locus of dissatisfaction in any one unit so that management can take appropriate action to improve the situation. A similar survey program in the Army might also be useful.

Summary of Satisfaction Measures

1. Measures of Overall Satisfaction

Hoppock Job Satisfaction Questionnaire (Hoppock, 1935)

Description: Four items rated on seven-point scales. The sum of these four ratings constitutes the satisfaction score.

Samples and Settings: A wide variety of occupational levels have completed the questionnaire, including unskilled, semiskilled, skilled, white collar, lower management, middle management, professional, and upper management.

Reliability: Internal consistency reliability is estimated at .93.

Validity: Moderately strong evidence for construct validity:
a. Orders occupational groups according to occupational status.
b. Correlates in the 70's and 80's with other measures of overall satisfaction.

Job Satisfaction Index (Brayfield and Rothe, 1951)

Description: Eighteen items rated on a five-point scale ("strongly agree" to "strongly disagree") yield one overall summed satisfaction score.

Samples and Settings: Clerical and secretarial workers, graduates of professional schools, male and female civil service employees, factory workers.

Reliability: Internal consistency estimates range from .78 to .90 with a median of approximately .87.

Validity: Evidence for construct validity:
a. High correlations with other satisfaction instruments, notably Hoppock's questionnaire.
b. Factory workers with the most functionally specialized (narrowest; least "enriched") jobs get lowest scores.

Tear Ballot (Kerr, 1948)

Description: Ten items rated on five-point scales.

Samples and Settings: A wide variety of occupational groups including clerks, office employees, supervisors, carpenters, and factory workers.

Reliability:
a. Internal consistency estimates range from .65 to .82 with a median of .76.
b. Test-retest estimate (1-week duration) is .81.

Validity: Evidence for construct validity:
a. Range of correlations between the ten individual items and rate of past turnover is from .14 to .63 with a median of .27.
b. Total score correlation with an individual's past job turnover is .25.
c. Significant correlations with a number of other criteria, but not always consistent or readily interpretable.

Survey of Organizations (Taylor and Bowers, 1972)

Description: Seven items rated on a seven-point scale from "very dissatisfied" to "very satisfied" yield one overall group satisfaction score.

Samples and Settings: A variety of industrial and business employees, both salaried and nonsalaried.

Reliability: Internal consistency estimate of .87.

Validity:
a. Construct validity. The satisfaction scale correlates with a measure of organization climate in a way that suggests organization climate causes satisfaction more than satisfaction causes climate.
b. Concurrent and predictive validities. Satisfaction correlates significantly with organizational criteria of efficiency, absenteeism, and turnover.

2. Measures of Facet Satisfaction

Job Description Index (Smith et al., 1969)

Description: Seventy-two descriptive items distributed among five scales measuring satisfaction with pay, promotions, work itself, coworkers, and supervision.

Samples and Settings: The JDI has been used with people in a wide range of job categories. It is probably less appropriate for very high level occupations such as top-level management or professional jobs.

Reliability:
a. Internal consistency estimates for the five scales range from .80 to .88 with a median of .86.
b. Test-retest estimates (3-year interval) range from .45 to .75.

Validity: Some scales have correlated with termination and absenteeism indices measured after JDI administration.

Semantic Differential Scales (Scott, 1967)

Description: From 25 to 75 semantic differential, polar-opposite adjectives for each of nine concepts or job facets. Only those polar-opposites that load on an "affective" factor are used to derive satisfaction scores.

Samples and Settings: Engineers; male civil service employees of a naval ammunition depot.

Reliability and Validity: No information available.

Minnesota Satisfaction Questionnaire (Weiss et al., 1967)

Description:
a. Long form: 100 items, 4 items for each of 20 facet scales. Yields 20 facet scores plus an overall satisfaction score.
b. Short form: 20 items yielding scores for intrinsic satisfaction, extrinsic satisfaction, and overall satisfaction.

Samples and Settings: The MSQ has been used with a very wide range of occupational categories and settings.

Reliability:
a. Long form:
(1) Median internal consistency estimates range from .78 to .93 with a median of approximately .86.
(2) Test-retest estimates (1-week interval) range from .66 to .91 with a median of approximately .84.
(3) Test-retest estimates (1-year interval) range from .35 to .71 with a median of .61
b. Short form: Internal consistency estimates for the three scales are generally in the 80's.

Validity:
a. Long form:
Construct validity:
(1) Seven of the 16 scales studied support hypotheses derived from Work Adjustment Theory about the relationship between the fit between need and reinforcement system on the one hand and satisfaction on the other.
(2) The scales generally order occupations on satisfaction levels similarly to the way occupations have been ordered according to satisfaction in previous research.
b. Short form: Some evidence for construct validity in the ordering of occupations on the satisfaction scales.

Triple Audit Opinion Survey (Dawis and Weitzel, 1971)

Description: An extension of the MSQ and MIQ. After interviewing a sample of those to be surveyed, the researchers decide on a subset of approximately 25 scales, four items per scale (from a total set of 58 scales) to be included in their "tailor-fitted" survey.

Samples and Settings: The TAOS has been used with a number of occupational categories.

Reliability and Validity: The scales in common with the MIQ and MSQ have adequate reliability and validity, but too little is known about the other 38 scales to evaluate them.

SRA Attitude Survey (Science Research Associates, 1970)

Description: Seventy-eight items distributed among 14 job-related dimensions and a fifteenth dimension regarding reactions to the inventory itself.

Samples and Settings: Extensive normative data is available for many occupational categories.

Reliability:
a. Test-retest (1-week interval) estimates for the 14 job-related scales are largely in the 70's. For group scores, estimates are in the high 90's for groups of 20 individuals.
b. Internal consistency estimates for the 14 job-related scales range from .60 to .84 with a median of .68.

Validity: Some evidence for construct validity comes from studies showing that the 14 job-related scales correlate with such alternative measures as:
a. Interview ratings of satisfaction--in the 50's
b. Brayfield-Rothe scale--in the 30's.

Cureton's Satisfaction Questionnaire for Airmen (Cureton, 1960)

Description: Factor analytically derived instrument with 72 items distributed among eight dimensions.

Samples and Settings: Airmen below the rank of master sergeant.

Reliability: Internal consistency estimates for the eight scales range from .65 to .92 with a median of approximately .85.

Validity: Construct validity derives from correlations between some of the scales and such variables as citations received, job performance ratings, morale ratings, performance rankings, military rank, and race.

Roach's Opinion Survey (Roach, 1958) and Twery's et al. Satisfaction Inventory (Twery et al., 1958)

Description: Both have factor analytically derived dimensions, but as far as we know have not been much used as scaled instruments.

Porter Need Satisfaction Questionnaire (Porter, 1961)

Description: Fifteen items rated twice on seven-point scales. A difference score is obtained on each item by subtracting the rating of "How much is there now?" from the rating of "How much should there be?" Need satisfaction scores are obtained for five need areas: security, social, esteem, autonomy, and self-actualization, by averaging the difference scores for the items in each category.

Samples and Settings: All levels of managerial personnel, commissioned Air Force officers, and a wide variety of hospital staff personnel.

Reliability: No estimates of reliability available.

Validity: Evidence for construct validity:
a. Expected differences in satisfaction for different levels of managers and Air Force officers.

b. Greater satisfaction of security needs in tall organizations than flat organizations, greater satisfaction of self-actualization needs in flat organizations than tall organizations.
c. Multiple correlation between overall satisfaction on the Porter questionnaire and the five scales of the JDI of .69.

Preference Inventory and Job Inventory (Beer, 1966)

Description: Thirty items representing five need categories: security, social, esteem, autonomy, and self-actualization. Items are arranged in six sets of five, each set containing one item from each of the categories. The six sets of items are ranked twice, first on the basis of "the order of importance to you" (the Preference Inventory), and, second, on the basis of "the opportunity to satisfy them at work"(the Job Inventory). Category scores on each inventory are obtained by summing the ranks assigned each item in a category. Category need satisfaction is obtained by subtracting the total rankings of items in a category on the Preference Inventory from the total rankings of the same items on the Job Inventory.

Samples and Settings: Clerical workers in an insurance company.

Reliability: Median internal consistency reliabilities of:
a. Preference Inventory: .74
b. Job Inventory: .68

Validity:
a. Content validity: Items selected on the basis of Maslow's definitions of need categories.
b. Construct validity: Scales emerge as independent factors in a factor analysis of a large number of variables.

Wanous and Lawler Desire Fulfillment Measure (Wanous and Lawler, 1972)

Description: Twenty-three items representing different facets of the work situation, each rated twice on seven-point scales, first on "How much is present?" and, second, on "How much would you like?" The difference score on each facet is obtained by subtracting the "Is present" rating from the "Would like" rating. An overall satisfaction score may be obtained by summing the difference scores for the 23 facets.

Samples and Settings: Non-managerial personnel of a telephone company working on 13 different jobs.

Reliability: Internal consistency reliability of the overall instrument of .28.

Validity: Evidence for construct validity:
a. Correlation of the overall score on the instrument with a single item measuring general satisfaction of .54.

b. Average correlation of the difference score on each facet with a direct measure of satisfaction on each facet (How satisfied are you with this aspect) of .44.

In addition to these multi-item instruments, many investigators have used single-item measures of both overall and facet satisfaction. Such single-item measures, particularly of facet satisfaction, can be very useful in providing specific, diagnostic information. However, they are not often studied according to their reliabilities and validities.

CHAPTER 8

SUMMARY AND CONCLUSIONS

Theoretical Issues

Motivation

According to content theories of motivation, there exist classes of environmental stimuli, individual needs, and consummatory behaviors with the capacity of motivating individuals to perform certain behaviors with varying degrees of vigor and persistence. That is, people will behave in certain ways to approach some kinds of environmental stimuli and avoid others, gratify their needs, and have an opportunity to perform certain kinds of consummatory behaviors. These environmental stimuli, states of individual need gratification, and consummatory behaviors--motivation content factors--vary according to how desirable they are for different individuals on different occasions.

The prevailing motivation content theories--those of Murray (1938), Maslow (1954), and Herzberg (1966)--are not specific and comprehensive enough to indicate precisely what are the important outcomes in the Army environment. We need to know which outcomes are most salient for motivating which particular behaviors under what kinds of circumstances and for what types of soldiers. Obviously, this is a highly complex issue. One way to attack it would be through the blatantly empirical route of "trying out" different kinds of outcomes for a carefully specified behavior like "reenlisting." For example, the researcher could test empirically each of a number of possible outcomes (like reenlistment bonus, increased educational opportunities, etc.) to see which work best in explaining and predicting the motivation to reenlist of specified groups of enlisted men (e.g., different job, ability, socio-economic status, and age classifications) under specified conditions (e.g., stationed abroad versus stationed in the continental U. S.). A number of investigators have studied the relative desirability of outcomes for behaviors like performing well and reenlisting, but the research emphasis should turn now to a closer look at how the importance of such outcomes is moderated by situational variables and individual differences.

Expectancy theories are one major body of motivation theories which seek to explain the process by which motivation content factors impact behavior. Expectancy theories maintain that people have expectancies about the likelihood of obtaining desired or undesired outcomes as consequences of their actions. The probability of a given action depends on the sum of the products of desirability times expectancy for all outcomes salient in that situation.

Expectancy theories of motivation have recently come under close scrutiny by a number of authors (e.g., Campbell & Pritchard, in press; Miner & Dachler, 1973; Heneman & Schwab, 1972; Mobley, 1971; Mitchell & Biglan, 1971; House & Wahba, 1972; and Wahba & House, undated). Besides the logical, methodological, and empirical problems that these authors discuss, one which we feel is particularly pertinent, especially for commanders who hope to improve motivation with the help of concepts drawn from expectancy theories, is this: What are the most powerful determinants of expectancies and valences? In particular, we need to know to what extent valences and expectancies are determined by factors representing relatively stable, individual differences--which suggest strategies of recruiting, selection, classification, and placement as ways to improve expectancy motivation--and to what extent they are determined by immediate situational factors--which suggest various strategies of altering the organizational environment.

A second theoretical process by outcomes said to influence behavior is the equity process. According to equity theories, a person will perform certain acts to reduce feelings of inequity which arise from his perception that his ratio of outcomes (what he gets out of his job) to inputs (what he puts into it) is different from the ratio of someone else. The stronger the feeling of inequity, the greater the motivation to reduce it.

Equity theories are vague about several issues which demand resolution before they can be more fully and readily applied to problems of measurement and improvement of motivation and satisfaction in the Army. Some central issues previously discussed are:

. What particular behavior is motivated by feelings of inequity under what circumstances and for what types of individuals?

. How do individuals differ in their perceptions of inputs and outcomes?

. How should we define "inputs" and "outcomes" to reduce the confusing conceptual overlap among these terms?

. What determines who a given individual's "referent other" will be?

Investigators have already begun to address themselves to some of these issues. Further research along these lines should pay additional dividends.

Job Satisfaction

Job satisfaction is a set of feelings of varying positive or negative affect that a person has with respect to different aspects of his overall job situation. These feelings are determined both by factors in the individual (his needs) and by factors in his job environment (rewards). There are three somewhat different ways of conceptualizing how feelings of

satisfaction and dissatisfaction at the work place come about: that is, in terms of need fulfillment, equity, and frame of reference models.

The need fulfillment model holds that feelings of satisfaction and dissatisfaction depend on the extent to which elements in the job environment are available to gratify people's needs. Such a model, which considers individual and environmental factors simultaneously as determinants of job satisfaction, seems more heuristically promising than models focusing exclusively on individual or environmental factors.

The frame of reference model differs from need fulfillment in that it seeks to explain satisfaction not in terms of match between needs and reinforcers, but rather in terms of match between an external standard of comparison and available reinforcers. Accordingly, a soldier's job satisfaction depends on how he evaluates his perceived job characteristics in comparison to his external (external to his present job in the Army) standards or frame of reference.

The equity model suggests that a person's standard of comparison is a referent other with whom the person compares ratios of job inputs to job outcomes. Feelings of inequity, which result when the person feels either underrewarded or overrewarded for his job inputs in comparison to a referent other, lead to feelings of dissatisfaction.

Morale

The term "morale" as used by military authors is an exceedingly complex concept that seems to include both notions of motivation and satisfaction as well as group-related notions like cohesiveness. Since we lack a more succinct and rigorous definition, let us define morale according to what military authors include as its aspects:

- Sense of advancing toward a worthwhile goal
- Exaltation of ideals
- Determination to reach the goal
- Positive and adaptive attitudes toward adverse conditions
- Feelings of contentment and satisfaction
- Courage
- Discipline
- Self-confidence
- Feelings of group cohesiveness.

According to military authors, this complex state of mind has a large number of determinants subsumed under the following general categories:

- Physical welfare and subsistence
- Pride in the Army and the unit
- Unit cohesiveness
- Individual's ideology
- Job-related satisfaction
- Leadership
- News and information.

Morale is such a complex notion that it would probably be better to conceptualize it in terms of its components rather than as a single, global, and undifferentiated construct. This calls for a more precise and rigorous theoretical development of morale. It would be good to develop a "nomological net" of the principal components of what military people mean by morale and conceptual interrelationships among them. It would then be possible to tie this nomological net to measurement and change operations by specifying how to observe and manipulate each of its components and how the experimental manipulation of one component is likely to impact others.

Implications of Theory for Change

A careful reading of theoretical issues reviewed in earlier chapters suggests a number of practical implications for the kinds of actions a commander might take to improve motivation, satisfaction, and morale among his troops. There is, of course, a very extensive literature that deals more directly with such practical considerations. In fact, much of the literature on leadership, training, personnel selection, compensation, organizational climate, and organizational development, to name but a few areas of industrial/organizational psychology, deals to some extent with techniques to improve motivation, satisfaction, and morale in formal work organizations. A discussion of all this literature is well beyond the scope of this review. We point out in a general way only some implications for change that derive from the theoretical and conceptual issues.

Because these practical implications are drawn from theoretical considerations, they should, of course, be verified by careful applied research and field experimentation before being widely implemented. Therefore, our remarks in this section should not be construed as strong and firm recommendations for practice, but rather as suggestions to be tried and tested before declared true. Some of the implications we mention here may appear somewhat remote and may not be feasible because of constraints and limitations imposed by the Army's organizational requirements. We hope, however, that they will stimulate further ideas for change and programs which can realistically be applied to improve motivation, satisfaction, and morale in the Army.

Motivation

Expectancy theories. To motivate a particular behavior--to increase the probability that it will be performed rather than some other behavior and that it will be performed more vigorously and more persistently--the commander should seek to maximize the sum of the products of an individual's expectancies of attaining outcomes relevant for that behavior and the valences of those outcomes for him.

To increase the valence of outcomes, the commander can choose from a number of possible strategies. For instance, he can make them more instrumental for other desired outcomes; assure that individuals attribute outcome attainment to ability and effort; or recruit individuals, place, and classify them according to whether they are predisposed to desire the kinds of outcomes available. We discuss these strategies more fully below:

Instrumentality. Since how much an individual desires an outcome like a promotion depends largely on how instrumental he thinks it is for other outcomes which the individual desires, the commander can increase its valence by making it more instrumental for other desired outcomes such as status. The commander might take steps to assure, for example, that status in the Army is commensurate with rank and that a promotion to a higher rank "automatically" means a significant increase in status. In addition, the commander should provide information which shows the promotions are indeed highly instrumental for status.

Attributions of success and failure. Theoretically, an individual will desire the military decoration (symbol of success) more if he believes that attaining it is a matter of effort and ability rather than luck or other factors out of his control. The commander should accordingly see that the decoration is rewarded only to the most deserving who through their own actions performed with sufficient distinction to deserve it. The individual should be made aware that people are decorated not because they are "lucky," but because they exert a high level of effort and/or have a great deal of ability.

Recruiting strategy. Because of recent previous experiences and because of more deeply ingrained individual differences, people differ according to the kinds of outcomes they desire and how much they desire them. If the commander can define clearly and comprehensively enough the particular outcomes which the Army can feasibly offer as rewards or incentives for various important behaviors, he might be able to devise a measure of how much potential recruits desire these outcomes. He should accept as new recruits only those applicants who desire outcomes available in the Army or provide a cafeteria of outcomes that can be chosen to satisfy various recruits' desires.

The commander also has available a number of strategies which should result in higher expectancies for desired outcomes. He can increase a person's chances of obtaining desired outcomes; provide information communicating that objective probabilities are higher than the individual thought; make the individual aware that objective probabilities are higher by having him experience the outcomes more frequently; train individuals to learn skills which lead to higher expectancies of some outcomes; or select new recruits according to ability and personality characteristics related to expectancies of desired outcomes:

Increasing the objective probabilities. One obvious way to increase a person's expectancy of obtaining a desired outcome like a promotion to a higher rank is to increase the objective probability that people who work hard and perform well will get promoted. This might be done, for example, by increasing the number of upper rank positions available. There are, of course, organizational constraints on how many upper rank positions the Army can have. Nevertheless, such a strategy might be feasible at least to some extent for promotions and perhaps for other outcomes as well.

Communicating the objective probabilities. In some instances, people might have expectancies of obtaining desired outcomes that are too low relative to objective probabilities of obtaining them. For instance, through conversations with his peers, a soldier might be led to believe that his chances of promotion within a certain period of time are extremely low. If his expectancy is too low relative to the objective probability, his motivation to perform behaviors leading to promotion can be increased by informing him that the real probability is higher than his own expectancy.

Experiencing the objective probabilities. For some kinds of desired outcomes, like praise and recognition from superiors, the commander can increase a person's expectancies by increasing the number of times he actually experiences the outcomes. For example, a leadership training course in which supervisors learn to give praise and recognition to subordinates more frequently and consistently for effective job performance should cause subordinates actually to receive praise more frequently and hence to expect it more frequently in the future. In this way, his expectancy of receiving praise from superiors would increase over time.

Training programs. Training programs which increase the level of skills and abilities a trainee considers essential for effective performance in his job should have the effect of increasing his expectancy that if he exerts effort, he will perform well--i.e., his Expectancy 1. Of course, this presupposes that his job duties correspond to his training. If he has been trained for a job category different from his primary duty MOS, then his training is unlikely to impact his Expectancy 1 or motivation to perform well on his assigned job.

Recruiting strategy. Another way to increase expectancies that troops have for desired outcomes is to select new recruits according to certain ability and personality characteristics related to expectancies. For instance, people who are generally more self-confident about their abilities should have higher expectancies of obtaining desired outcomes contingent on exerting effort than people with lower levels of self-confidence. A recruit who, before joining the Army, has a higher expectancy of being promoted because of his generally higher level of self-confidence would likely be relatively more motivated to perform behaviors that lead to promotion.

Equity theories. The major motivational tenet of equity theories is that people are motivated to reduce feelings of inequity which result when they perceive that their ratio of outcomes/inputs is different from the ratio of outcomes/inputs of a referent other.

Even though some central concepts of equity formulations are only vaguely articulated, they do suggest broad strategies different from those suggested by expectancy theories of motivation. Very generally, the practical implication drawn from equity theory is that to change motivation, the commander needs to change the person's perception of his own ratio of outcomes/inputs in relation to his perception of his referent other's ratio of outcomes/inputs.

To change the person's perception of his own ratio of outcomes/inputs, the commander can adopt the following kinds of strategies: He can change the person's outcomes objectively; change his inputs objectively; change the person's perceptions of his outcomes and/or inputs; or select recruits according to stable individual differences in what they generally perceive as inputs and outcomes:

Changing the person's outcomes objectively. By changing what a person gets out of his job--his outcomes--the commander can alter his ratio of outcomes to inputs. A soldier who, for example, gets significantly more (or less) pay than another soldier should theoretically experience feelings of inequity to a different degree than the other soldier, all things (like perceived inputs and referent other's outcomes and inputs) being equal.

Changing the person's inputs objectively. This is a second general and fairly obvious strategy for altering feelings of equity and inequity. If job-related skills and abilities are important input factors, the commander can change feelings of inequity by taking steps to alter the level of soldiers' job skills. A training program that improves job skills would be one means of altering inputs and, consequently, feelings of inequity. Or, the commander could change such inputs by simply reassigning a man to a job corresponding more closely to the job he was originally trained for. A third way of changing input factors like job skills and abilities is to institute a recruiting strategy which selects only those applicants with high levels of skill considered necessary for effective performance on specified Army jobs. These three strategies--training, job reassignment, and recruiting--offer the capability of increasing level of input factors like skills and abilities required for effective job performance. Other things being equal, such changes in inputs will result in changes in feelings of equity and inequity.

Changing the person's perception of his outcomes and inputs. Rather than changing the person's actual outcomes and inputs, the commander can alter feelings of inequity by simply changing the person's perception of them. For example, a soldier might be either misinformed or simply unaware of promotional opportunities, medical benefits, pension benefits, and educational opportunities. By providing accurate information about such outcomes, the commander should be able to change perceptions of outcomes and hence feelings of inequity.

Recruiting strategy. Since people differ according to whether they consider certain job elements as outcomes or inputs, the commander can alter feelings of inequity among soldiers by selecting new recruits who tend to perceive certain specified job elements as inputs and certain other as outcomes. For example, responsibility is a job element that some may consider an input and others an outcome. If responsibility is indeed an important component in a given Army job, people who regard it as an input will have a ratio of outcomes/inputs different from the ratio of outcomes/inputs of those who regard it as an outcome. Thus, by systematically selecting one type of new recruit rather than another, the commander is changing the feelings of inequity among soldiers on that job. By the same token, of course, careful classification and placement according to the individual's abilities will also change feelings of inequity.

To change the person's perception of his referent other's ratio of outcomes/inputs--the second primary determinant of feelings of equity and inequity--the commander also has a number of strategies available to him. He can attempt to change the referent other's actual outcomes or inputs; the person's perceptions of the referent other's outcomes and inputs by providing information about them; or the identity of the referent other:

Changing the referent other's actual outcomes or inputs objectively. If the referent other is someone who is accessible to the commander, he may be able to alter the referent other's outcomes and inputs by means similar to those discussed for changing the person's own outcomes and inputs. Thus, the commander can provide the referent other with greater or lesser levels of important outcomes. Or he can train, reassign, or recruit referent others in order to alter inputs like job skills and abilities.

Changing the person's perceptions of his referent other's outcomes and inputs. Even if the referent other is not directly accessible to the commander, he still has the option of altering the person's perception of the referent other's outcomes and inputs. For example, if a soldier's referent other is a civilian friend back home, the commander may provide the soldier with information giving him a more accurate picture of the friend's outcomes and inputs. Thus, news stories of the economic conditions back home, the civilian job market, the cost of living, and so forth, should have an impact on the way the soldier perceives his referent other's (i.e., his civilian friend's) outcomes and inputs.

Changing the identity of the referent other. Although it seems theoretically feasible to change the identity of a person's referent other--for example, to have the soldier regard a friend in the Army as his referent other instead of a civilian friend back home--equity theories as presently formulated are not clear enough about what determines the referent other for a given person in a given situation to suggest concrete and practical ways for a commander to change the referent other's identity.

The strategies we have just briefly presented should result in changes in feelings of equity or inequity. The commander should be careful, however, lest his efforts to improve motivation through strategies implied by equity formulations result in unintended and perhaps dysfunctional consequences. According to equity theories, the greater the feeling of inequity, the greater the motivation to do what is necessary to reduce it. But equity theories do not clearly specify what a person will do to reduce these feelings. For instance, someone on piece-rate pay schedule who feels inequitably underpaid will likely be motivated to increase productivity to reduce feelings of inequity, but if on an hourly plan, he may decrease productivity to reduce inequity. Thus, increasing motivation by increasing feelings of inequity may not always be in line with organizational goals. In fact, to the contrary, it might often be better to decrease motivation by decreasing inequity feelings.

Satisfaction

Theoretical and conceptual issues in the area of job satisfaction also have practical implications for organizational change. The three major conceptual models of satisfaction--need fulfillment, frame of reference, and equity models--suggest somewhat different strategies the commander might adopt to improve the level of satisfaction in his organization.

Need fulfillment model. The need fulfillment model suggests that satisfaction is a function of fit between an individual's needs or desires and availability of environmental rewards to satisfy those needs. To improve satisfaction, this model implies that the commander should try to maximize degree of correspondence between individuals' desires and environmental rewards. To some extent, the Army is already using this approach by offering such outcomes as unit of choice, station of choice, and guaranteed training. This approach could be extended to include other outcomes as well, such as occupation of choice and permanent assignment to a fixed location.

Three general strategies in line with the need fulfillment model are: Change the environmental reward to correspond with desires of people in that environment; reassign people to different locations or environments which provide rewards corresponding more closely to their desires; and select new recruits who desire the environmental rewards generally available in the Army.

Changing the environmental rewards. This strategy involves simply providing the kinds of rewards soldiers desire. For example, in many instances it might be possible to make alterations in pay schedules, promotion plans, recreational facilities, housing, and so on, in accordance with expressed desires.

Reassigning to different environments. Instead of changing a person's environment directly, it might be administratively more feasible to reassign or relocate certain individual to different environments. Thus,

soldiers who want to travel might be stationed abroad and those who want certain jobs might be reassigned to jobs of their choice.

Selecting new recruits. A third strategy is to select new recruits who indicate strong desires for the kinds of outcomes and environmental rewards they are likely to receive in the Army. This strategy in effect would mean selecting new recruits according to the probability that they will find a close fit between their desires and available rewards--in the Army.

Frame of reference model. This model suggests that a person's feelings of satisfaction or dissatisfaction depend on the degree of discrepancy he perceives between characteristics of his present environment and some external standards of comparison. Implied administrative strategies for minimizing perceived discrepancies parallel the need fulfillment model:

Changing the environment. This strategy involves changing the characteristics of the soldier's environment to make it more similar to the environment of his frame of reference. For instance, if the frame of reference is conceptualized as the outcomes or environment a soldier expected before he enlisted, the commander might find it feasible to provide the soldier with outcomes that come closer to what he expected or perhaps that exceed what he expected.

Reassignment. The commander might find it more feasible to reassign or transfer the soldier to other environments in the Army which are more in line with his frame of reference.

Recruiting. A third strategy would be to recruit soldiers whose frames of reference are not discrepant from the environments and outcomes in the Army.

Equity model. According to the equity model, people are dissatisfied when they perceive their ratio of outcomes/inputs to be inequitable relative to the ratio of outcomes/inputs of a referent other. Implications of equity formulations for changing satisfaction are not substantially different from their implications for changing motivation which were already discussed in some detail; we list them only briefly below:

. Changing the person's outcomes objectively by providing greater or lesser levels of the outcomes

. Changing the person's inputs objectively by training, reassignment, or selective recruiting

. Changing the person's perception of his inputs and outcomes by communicating more accurate information about them

. Selectively recruiting soldiers according to stable tendencies to regard certain job elements as outcomes and certain others as inputs

. Changing the referent other's outcomes and inputs objectively

. Changing the person's perception of his referent other's outcomes and inputs by providing more accurate information about them

. Changing the identity of the referent other.

Morale

Morale seems to be such an all-embracing concept that virtually anything in the soldier's environment can impact it. This implies that the commander must face a bewildering variety of morale strategies. Since there are no theories of morale articulated with sufficient precision to suggest a readily apparent and manageable classification of administrative strategies for improving morale, we simply list below major categories of determinants of morale. Administrative strategies will focus on changing these determinants:

. Physical welfare and subsistence
. Pride in the Army
. Unit cohesiveness
. Individual's ideology
. Task, job, and career satisfaction
. Leadership
. News and information.

Categories of determinants are fleshed out in greater detail in Chapter 4.

Measurement

Below we list instruments and methods discussed in Chapters 5 and 6 which seem most likely to be useful as measures of motivation, satisfaction, and morale in the Army.

Motivation

1. A measure of motivational content which lists a set of fifty to one hundred fairly specific job outcomes and which requires the respondent to rate each outcome first on a seven-point scale of desirability and then on a seven-point scale of perceived probability of occurrence following high levels of effort on the job. Ratings of desirability by themselves constitute a measure of valence for outcomes which could be used either to ascertain how desired the outcomes are by enlisted men in general or to infer individual differences in needs or desires for the outcomes. In combination with expectancy ratings, desirability ratings yield a motivation process score for each individual computed as the sum across outcomes of valence times expectancy.

2. A measure of motivation content which lists 25 to 50 broader outcomes more relevant to the enlisted man's MOS, the Army, and the military in general than to his specific job. The respondent rates these outcomes on a seven-point scale of "how important" they are (or were) for:

- His original enlistment decision
- His future decision to reenlist
- His level of job effort
- His general job satisfaction

3. The Minnesota Importance Questionnaire (Weiss et al., 1967). This is a very well-constructed measure of a person's job-related needs on twenty dimensions like "ability utilization," "activity," and "authority." Items are at the sixth grade level of reading difficulty and consequently should be readily comprehensible to most enlisted men.

4. Patchen's (1965) Job Motivation Indices. The four items in the Job Motivation Index have been shown to have adequate test-retest reliability and at least some concurrent validity with respect to criteria of absenteeism and turnover. Since this is such a short instrument, it could be supplemented by another brief measure of general work motivation, Lodahl & Kejner's six-item Job Involvement Questionnaire. Although little hard evidence regarding its test-retest reliability or validity is available, this is a very carefully-constructed instrument and it may prove useful, particularly in conjunction with Patchen's instrument.

Job Satisfaction

1. The Brayfield and Rothe (1951) Job Satisfaction Index. This is a widely used measure of job-related satisfaction suitable for a diverse range of occupational groups.

2. The Survey of Organizations (Taylor and Bowers, 1972). The seven-item satisfaction scale in this instrument has adequate reliability and construct validity as a measure of job-related satisfaction of groups or organizational units.

3. Minnesota Satisfaction Questionnaire (Weiss et al., 1967). The MSQ is a carefully developed measure of satisfaction with twenty job facets. The short form yields a total satisfaction score as well as scores of satisfaction with the intrinsic and extrinsic aspects of the job situation.

4. Job Description Index (Smith et al., 1969). The JDI is a well-known measure of satisfaction with five facets of the job situation--work itself, pay, promotions, supervision, and co-workers.

5. Cureton's (1960) Satisfaction Questionnaire for Airmen. This is a factor analytically derived measure of satisfaction with seven aspects of the working environment in the Air Force as well as an eighth scale measuring overall satisfaction or "general morale." Since it was developed specifically for the military, the instrument should be readily amenable to adaptation for use in the Army.

6. Survey Technique. The attitude measurement program at Sears (Smith, 1962, 1963) illustrates how a careful and systematic use of specific survey questions can provide a valuable diagnostic function for management, especially when supplemented with a set of well-developed evaluative scales of satisfaction. A similar strategy is used with the Triple Audit Opinion Survey (Dawis and Weitzel, 1971) and the SRA Attitude Survey (Science Research Associates, 1970).

7. Difference Score Instrument (e.g., Wanous and Lawler, 1972). This technique of measuring the discrepancy between desired outcomes and available outcomes, a relatively recent development in satisfaction measurement, shows considerable promise as an alternative to the more traditional "direct" measures of satisfaction.

Morale

We found no instruments which measure the complexity and richness of morale as the term is used by military authors. That is, we found no self-report measures in which respondents could indicate both their satisfaction and motivation as well as feelings of group cohesiveness, pride, attitudes toward adversity, and the other components of morale discussed in Chapter 4.

Of course, the investigator need not limit himself to self-report measures. Military commanders have traditionally gauged troop morale by attending to indicators like AWOL and sick call rates. Also, they have used behavioral signs like the smartness of troops when marching, how they perform on their duty stations and in athletic contests, and whether they express pride in their units. If he were to classify these behavioral indicators of morale, the investigator might be able to improve the commander's traditional, informal "indicator measure" by designing instruments that helped the commander focus more systematically on those aspects of troops' behaviors that most reliably and validly reflect their morale. The method of "scaled expectations," which we outlined in Chapter 7, appears to be well suited to the development of such a behavioral measure of morale.

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